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# BLUE JAY

Volume 67 Number 1
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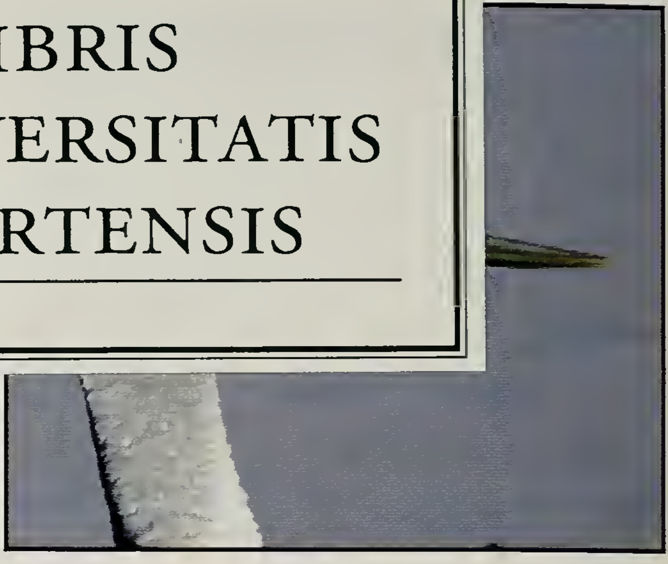

# Blue Jay

Vol. 67 No. 1 March 2009 1-64

**Editors' Message** .......... 3

**Birds**

67th ANNUAL SASKATCHEWAN CHRISTMAS BIRD COUNT – 2008.
*Alan R. Smith* .......... 5

OCCURRENCE OF CLARK'S GREBES AND THEIR HYBRIDS WITH WESTERN GREBES IN PRAIRIE CANADA. *André Konter* .......... 26

SUMMARY OF NORTHERN SAW-WHET OWL BANDING – 2008.
*Harold Fisher* .......... 34

SIX YEARS OF TURKEY VULTURE WING-TAGGING. *C. Stuart Houston, Brenton Terry, Marten J. Stoffel, and Michael Blom* .......... 37

**Mammals**

36th ANNUAL SASKATCHEWAN CHRISTMAS MAMMAL COUNT – 2008.
*Alan R. Smith* .......... 42

**Insects**

OCCURRENCE OF THE ENDANGERED GOLD-EDGED GEM (*SCHINIA AVEMENSIS*) AT CFB SUFFIELD NATIONAL WILDLIFE AREA, ALBERTA.
*Olaf Jensen, Medea Curteanu, and Gary Anweiler* .......... 50

**Notes and Letters**

SAW-WHET OWLS NESTING NEAR PRINCE ALBERT, SK, IN 2008.
*Harold Fisher* .......... 54

DIVISION OF LABOUR IN A PAIR OF SNOW BUNTINGS WHILE RAISING OFF-SPRING ON THE ARCTIC TUNDRA. *J. David Henry* .......... 55

ATYPICAL WARBLING VIREO NEST: LIKELY CAUSE OF HATCHING FAILURE.
*Todd J. Underwood* .......... 57

NEW BREEDING RECORD FOR PASSENGER PIGEONS EAST OF PRINCE ALBERT, SK, IN 1852. *Brett Quiring* .......... 60

**Poetry**

TWO PLUS ONE. *Victor C. Friesen* .......... 33

SPRING. *Victor C. Friesen* .......... 41

**Mystery Photo** .......... 61

***Front cover***: *Eastern Towhee seen at Candle Lake during the Christmas Bird Count in December 2008.* *N. Saunders*

***Back cover***: *Intermediate between Clark's Grebe and Western Grebe, photographed while advertising at Pelican Lake, Manitoba.* *A. Konter*

***Inside front cover top panel***: *Figure 1 for the article by A. Konter on page 26.*

*top left: Clark's Grebe at Last Mountain Lake with orange yellow bill, and lores, above eye, behind eye, and below eye areas in white plumage.*

*top right: Western Grebe at Delta Marsh with green yellow bill and lores, above eye, behind eye, and below eye areas in black or dark gray plumage.*

*bottom left: Hybrid at Pelican Lake with green-yellow bill, above eye and behind eye areas in dark plumage, and lores and below eye areas in white plumage.*

*bottom right: Hybrid at Pelican Lake with green-yellow bill, but orange-yellow eye ring, above eye area in dark plumage, and lores, behind eye, and below eye areas in faded light gray plumage.*

***Inside front cover bottom panel***: *Hang in there; spring is almost here.*
*N. Saunders*

***Inside back cover***:
*top: Northern Flicker enjoying a berry snack.* *N. Saunders*

*bottom: Figure 2 for the article by Jensen et al. on page 50: Adult Gold-edged Gem on sunflower.*

*Snow Buntings*
*N. Saunders*

THIS ORGANIZATION RECEIVES FUNDING FROM:

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# EDITORS' MESSAGE

We'd like to introduce ourselves to the readers of *Blue Jay* and to thank Nature Saskatchewan for giving us the opportunity to take over the editors' helm. Anna and Ted Leighton have left some big shoes for us to fill, and we hope to maintain the high standards that they've set during the past decade. Our primary goal as editors is to facilitate the publication of high quality natural history material. In addition, we also aim to improve the accessibility of the journal by expanding electronic options for article submission and hopefully move forward with an internet version in the near future. We are always available for discussion regarding material for submission, and we will do everything we can to help authors refine their work to produce the best possible product for publication. We view our primary role to be one of facilitating good science reporting, and we encourage authors of all educational backgrounds to submit articles, notes, photos, poetry, book reviews, and letters. The *Blue Jay* is a fantastic outlet for publishing on the unique natural history of the prairies – let's make good use of this resource!

**About us:**

Vicky Kjoss: I grew up in Germany and completed both my B. Sc. Hons. (Forestry) and my M. Sc. (Wildlife Ecology) at the University of New Hampshire (USA). In between the two degrees, I took some time off to work as an intern for several different European organizations, which gave me the opportunity to work with European badgers and European beavers. Following the completion of my M. Sc., which involved studies of snake communities, I moved to Hamilton, Ontario, in 2000. There, I worked in several laboratories on a variety of wildlife research programs at McMaster University, including colonial bird ecology and conservation, population genetics of endangered species, ecotoxicology, and fish physiology and aquatic toxicology. Since moving to Saskatchewan in 2004, I have worked on research related to resource use by fish-eating birds in several major provincial eco-regions. In addition to being a wildlife biologist, I have also worked as a technical editor for a number of years. In that capacity, my job is to vet papers written by scientists whose first language is not English; this has given me exposure to a wide variety of fields. Most recently, I've donned a third hat: Mom. Our first son, P.J., is now 18+ months old, and our second son, Philipp, was born on 16 February of this year. P.J. is diligently learning to identify birds, and we hope that both boys will be able to help us with our fieldwork in the coming years.

Chris Somers: I grew up in Toronto and completed my B.Sc. Hons. (Biology) at York University, where I had the opportunity to conduct research on bats. I moved a little bit farther west to Brock University for my M.Sc. (Biology), which focused on the foraging behaviour of birds and resulting patterns in crop damage sustained by wine grapes. From there I attempted to add to the usual repertoire of tools wielded by traditional ecologists by moving to McMaster University and doing a Ph.D. in genetic toxicology. I moved to Saskatchewan in 2004 to take up a post-doctoral fellowship in animal behaviour and conservation at the University of Regina, and I was so taken with the area that I decided to stay! My favourite aspect of Saskatchewan is the

*P.J., Vicky and Chris at Grasslands National Park in July 2008.* *L. Somers*

wonderful diversity of habitats and species that are found here. I am currently an Assistant Professor of Biology at the U of R, as well as a Canada Research Chair in Wildlife and Environmental Mutagenesis. My current research focuses on interactions between humans and wildlife, and I have students working on a broad spectrum of local species, including fish, birds, annelids, and reptiles. I currently sit on the editorial boards of two major scientific journals, and I hope to bring some of that experience to work for the *Blue Jay*. Perhaps my greatest scientific experiment yet was to recently delve into the world of parenthood. Our two sons, mentioned above, are currently being shaped into natural history buffs, but more importantly as future field staff!

**Nature is replete with strange and wondrous plants and critters. We'd love to see YOUR PHOTOS and hear your stories. Please submit any potential material (especially Mystery Photos) to us at <kjoss@sasktel.net>."**

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# 67TH ANNUAL SASKATCHEWAN CHRISTMAS BIRD COUNT - 2008.

ALAN R. SMITH, Box 154, Avonlea, SK S0H 0C0

## The counts

The weather leading up to the 67th annual Christmas Bird Count (CBC) was promising, but just as the first day of the official count period (14 December) rolled around, the weather turned nasty with temperatures in the –30s and lots of snow. Except for a brief respite around Christmas, the unseasonably cold weather persisted.

The results were hardly a surprise. The number of counts dropped to 90, the lowest since 1995, when only 86 were conducted. The number of observers (704) and hours spent counting (1508) were also the lowest in about a decade.

In spite of the decline in the number of counts, a few new counts were added: Briercrest, Viceroy-Bengough, and Wingard-Fort Carlton.

One pair of observers reluctantly gave up compiling their count. Velma and her husband Bill Spizawka contributed counts from Spalding every year from 1991 to 2007. Let's have a tip of the toque to Velma and Bill for their contributions over the years!

## The birds

Given the low level of observer effort, it is somewhat of a surprise that the number of birds (142,151) was up slightly over last year's 135,246. However, most of the difference was due to the larger number of Mallards, Horned Larks, and Snow Buntings recorded this year over last year.

The 90 species recorded on count day with another four for the count period was also below average for the last decade. Saskatoon led with 39 species on the count day plus four additional species, for a total of 43 species. Saskatoon recaptured the crown in 2003 and has not lost it since. The Gardiner Dam count was a remote second with 32 species.

## Population trends

Ring-necked Pheasant, Horned Lark, Snow Bunting, and Pine and Evening Grosbeaks showed increases over previous years (Table 7), while the irruptive White-winged Crossbill and Pine Siskin were up over last year but not over the last 5 years. The first three species may have not have actually increased, but may have been concentrated along roadsides due to the high snowfall. The increase of the Evening Grosbeak is encouraging, as it is a species of concern across its North American range.

On the other hand, it is no surprise that most species that normally winter farther south were down over the previous 5 years. These include the Brown Creeper, Golden-crowned Kinglet, American Tree Sparrow, and Junco. The American Robin bucked the trend, showing huge increases over last year and the previous 5 years.

House Finch numbers rebounded from last year's provincial low of 883 to 1034, with a record high count of 686 in Saskatoon (Table 6). New localities for the species included Harris and White Bear, thus extending the fringes of its range westward.

The Eurasian Collared-Dove continues to increase in numbers and expand in range with new localities in Avonlea, Biggar, and Briercrest. The 108 birds recorded during the Swift Current count is a new high.

## New species

Incredibly, a new species was added to the all-time CBC list when Edith Mann of Togo saw a Clark's Nutcracker. The bird was not seen on their count day, 4 January 2009, but on 14 December 2008. This brings the number of species seen on the CBC to an impressive 183.

## Other rarities

Only a few rarely recorded species were reported. A Mountain Chickadee during the count period of the Swift Current Count was the ninth CBC record and the 14th provincial record. An Eastern Towhee at Candle Lake was only the second in the history of the count.

## Ruffed Grouse morph survey

This year we asked observers to record the morphs (incorrectly called phase) of the Ruffed Grouse that they saw during their counts. Ruffed Grouse come in two morphs: gray and red. The theory is that the red morphs are most common in deciduous forests, while the gray are more abundant where conifers dominate. Results from this survey when combined with other data gathered bear this out. Gray morphs are three times more common than reds in the Boreal Forest, but only twice as common as reds in the Aspen Parkland. Thanks to those who participated in the survey !

## Count areas and participants

*(Names of compilers are in italics).*

1. ARCHERWILL. *Elaine Hughes*, Dorothy Klettberg, Willie Klettberg, Annette Kozak, Judy Revoy, Rick Rohne, Pat Matheson.

2. ARMIT. *Val Harris*, Sheila Lamont, Joyce Zak.

3. AVONLEA. Randi Edmonds, Joanne Miller, Don Robertson, Lynn Robertson, *Alan Smith.*

4. BANGOR. *Allan Bolton, Lynn Bolton,* Aileen Hayward, Alan Hayward, John Maddaford, Leslie Maddaford, Bev McLaren, Raye McLaren.

5. BIGGAR. Greg Goring, Mark Pickett, Lorrie Sielski, *Guy Wapple*, Rob Wapple.

6. BIRCH HILLS. Carman Dodge, Margaret Mareschal, *Moe Mareschal,* Don Weidl.

7. BRIERCREST. *Alan Smith*, Tamara Dirkson.

8. BROADVIEW. Doug Boivin, *David Chaskavich*, Barbara Weidl, Don Weidl, Lorraine Weidl.

9. CABRI. *Carman Dodge.*

10. CANDLE LAKE. Douglas Boivin, Carman Dodge, Ryan Dudragne, Ron Jensen, Sandra Klassen, Wayne Klassen, Daryl Prokopetz, Lois Prokopetz, Nick Saunders, *Don Weidl.*

11. CHRISTOPHER LAKE. *Jeannie Walker.*

12. CHURCHBRIDGE. Elin Johnson, Ron Johnson, *Wally Karau*, Elaine Pollock, John Pollock, Ed Wirth, Gloria Wirth.

13. CLARK'S CROSSING. Alison Baudru, Carol Blenkin, Janny Bos, Annemarie Buchmann-Gerber, Dave Cook, Louise Cook, Lorne Duczek, Daniel Giesbrecht, May Haga, Marilyn Haskins, Ron Jensen, Heney Klypak, Regina Koenders, Nola Kornder, Carol Maccan, Hilda Noton, Sylvia Raginski, Nick Saunders, Jan Shadick, Stan Shadick, Marten Stoffel, Mary Toews, *Michael Williams.*

14. CODETTE LAKE. *Doug Boivin*, Carman Dodge, Carol Meszaros, Don Meszaros, Barb Weidl, Don Weidl.

15. CORONACH. *Alan Smith.*

16. CRAVEN. Stephane Canevet, Jim Cummings, *Trevor Herriot,* Louise Holloway, Phil Holloway, Bob Johnson, Bob Luterbach, Barbara

Mader, Kevin Moore, Curtis Pollock, Brett Quiring, Susan Rolling, Jeannette Taylor.

17. CREIGHTON. *Brenda Schmidt*, Harvey Schmidt.

18. CROOKED LAKE. *Boyd Metzler.*

19. CROOKED RIVER. Helen Carson, Lyle Carson, Burnie Lewis, Joyce Lewis, Kristine Mehler, *Margaret Mehler,* Morley Mehler.

20. CYPRESS HILLS PROVINCIAL PARK (Centre Block). Donna Jones, Rob Jones, David Larson, Margaret Larson, *Melody Nagel-Hisey (non-participating compiler),* Maryanne Whitman.

21. DORINTOSH. *Joe Twidale, Lorraine Twidale.*

22. DUCK LAKE. Keith Hobson, Phil Taylor, *Alan Smith,* Steve Van Wilgenburg.

23. DUVAL. Coreen Richardson, Iain Richardson, John Richardson, *Lloyd Saul.*

24. EASTEND. Ron Dutcher, *Robert Gebhardt,* John Hanline, Joan Hodgins, Harvey Johnson, Jeanne Kaufman, Don Mitchell, Ed Sandford, Joan Saunders, Mary Thomson.

25 ELLISBORO. *David Chaskavich,* Lorrie Sens.

26. ENDEAVOUR. *Norman Harris.*

27. ESTEVAN. Kathy Hedegard, Reid Walton, Rose Walton, *Guy Wapple.*

28. ESTUARY NORTH. *Cathy Cocks.*

29. FENTON. *Carman Dodge,* Moe Mareschal, Don Weidl.

30 FORT QU"APPELLE. Phyllis Bordass, Donna Caruso, Gord Demoskoff, *Ronald Hooper,* Alice Isfan, Lois Lamontagne, Jack Lowe, Jean McKenna, Allan Mlazgar, Alec Mondbriand, Brett Quiring, Keith Stephens, Kim Stephens, Ted Stevenson, Fred Warren, Elaine Willox.

31. GARDINER DAM. Ryan Dudragne, Greg Fenty, Nick Saunders, Marten Stoffel, *Guy Wapple.*

32. GOOD SPIRIT LAKE. *Bill Anaka,* Joyce Anaka, Tom Carnahan, Oney Pollock, Dorothy Riesz, Ray Riesz, Lloyd Wilson, Marj Wilson.

33. GRASSLANDS NATIONAL PARK. Karin Fargey, Pat Fargey, Michael Fitzsimmons, Brock Harbor, Johane Janelle, Wes Olson, *Adrian Sturch*, Tamara Sturch, Ashley Wirth.

34. GRAYSON. Carina Helm, *Charles Helm*, Daniel Helm, Karl Zimmer.

35. HARRIS. Burke Korol, Betty Selsey, Fred Selsey, Brandon Wapple, *Guy Wapple.*

36. HEPBURN. *George Dirks, Thelma Dirks.*

37. HOLBEIN. Bill Hughes, *Carl Miller.*

38. HUDSON BAY. Sherry Braun, *John Daisley,* Ada Hawrish, Les Hayes, Joyce Hayes, Agnes Lewellin, Laurie Nielsen, Ron Shepherd, Gloria Stang, John Zolkavich.

39. IMPERIAL. *Ross Dickson.*

40. INDIAN HEAD. B. Duran, L. Duran, M. Duran, T. Duran, *Irv Escott,* David Gehl, R. Gehl, Z. Gehl, Lansley Gibbens, R. Hearn, Susan Hearn, Gordon Howe, Jim Jinks, Linda Jinks, Tim Keselring, Nick Kucharan, S. Kucharan, D. Loran, Dora Nichols, B. Scott, G. Scott, Lorne Scott, C. Skinner, Fred Skinner, Donna Thompson, Shirley Walker, Spence Walker.

41. KELVINGTON (Roscommon School District). *Dianne Sloan,* Marguerite Sloan.

42. KENASTON. *Lawrence Beckie.*

43. KENOSEE LAKE. Boyd Metzler, *John Pollock.*

44. KETCHEN NORTH. *Dallas Fairburn.*

45. KINDERSLEY NORTH. *Jean Harris,* Keith Harris.

46. KINISTINO (Horseshoe Bend). Danelle Messer, *Verna Messer.*

47. KINLOCH. Elaine Asbjornhus, *Don Forbes,* Doreen Forbes, Cliff Logan, Travis Wang, Ralph Wang, Doreen Wickstrom.

48. KUTAWAGAN LAKE. *Val Harris*, Sheila Lamont.

49. KYLE. Ralph Barlow, Gary Bortolotti, Glen Pederson, Martin Stoffel, Michael Williams, *Dan Zazelenchuk.*

50. LA RONGE. Barb Biliski, Maureen Howell, Syd Robinson, *John Schisler,* Jan Shewchuk, Joan Shewchuk, Karen Waters.

51. LAST MOUNTAIN LAKE N.W.A. *Val Harris*, Sheila Lamont.

52. LEADER NORTH. *Daisy Meyers.*

53. LOVE - TORCH RIVER. *Bert Dalziel,* Duke Dalziel, Joan Dalziel, Kari Dalziel, Sara Dalziel, Jack Dewar, Lena Dewar, Scott Edwards, Elaine Inkster, Roseanne Kirkpatrick, Ron Knutson, Terry Knutson, Eileen L'Heureux, Bill Matthews, Lynn

Matthews, Bev Macauley, Dave Macauley, Lillian Nesset, David Pratt, Sandra Topp.

54. LUSELAND. Estelle Finlay, *Kim Finley*, Liam Finley, Valerie Finley, Brent Honeker, Glen Martfeld, Melba Martfield, Joan Onerheim.

55. MACDOWALL. Hazel Barton, Myron Barton, Barb Sather, *Alan Smith*.

56. MATADOR. Cindy Romo, *Jim Romo*.

57. MAYVIEW. *Judith Graham*.

58. MEADOW LAKE. Bill Caldwell, Janet Caldwell, Deirdre Todd, Phyllis Todd, William Todd, *Bob Wilson*, Ian Wilson.

59. MOOSE MOUNTAIN. Bob Cameron, Kathy Hedegard, Doyle Thomas, *Val Thomas*.

60. MORSE. Jared Clarke, Elizabeth Enns, Noel Enns, Stella Enns, Mike Francis, Kristen Martin, Randel McCulloch, Joel Priebe, Ken Priebe, *Myrna Priebe,* Lori Wilson.

61. NIPAWIN. *Carol Blenkin*, Inga Brown, Vi Budd, Joyce Christiansen, Rose-Marie Cornand, Bert Dalziel, Joan Dalziel, Rick Douslin, Shirley Harstad, Wally Harstad, Sharon Kozar, Cary LeCuyer, Jennette LeCuyer, Kyla LeCuyer, Wally Mollberg, Doug Pegg, Jocelyn Thresher.

62. NISBET FOREST, WEST. *Kim Clark,* Kiri Clark, Shamara Clark, Suzanne Clark, Evelyn Marshal. Mrs. Jerry Perkin.

63. PIERCE LAKE. Bill Bretsch, *Ted Hindmarsh (non-participating compiler),* Phil Shore.

64. PIKE LAKE. Alison Baudru, Donna Bruce, Ann Christensen, David Cook, Louise Cook, Jill Cornford, Peter Cornford, Ryan Dudragne, Greg Fenty, David Forbes, Daniel Giesbrecht, Bob Girvan, Jeffrey Jensen, Ron Jensen, Robert Johanson, Audrey MacKenzie, Bill Mackenzie, Bob McNaughton, Lynn Oliver, Scotty Oliver, *Frank Roy,* Nick Saunders, Jan Solem, Angela Stern, Marten Stoffel, Hilda Voth, Bev Will, Michael Williams, Dwight Young, Nancy Young.

65. PRINCE ALBERT. Jim Bahr, Kim Clark, Kiri Clark, Shamara Clark, *Carman Dodge*, Keith Dodge, Margaret Ferguson, Ham Greenwood, Elaine McMillan, Michael Newman, John Rye, Jess Schnaar, Rory Schnaar, Bonny Tolley, Don Weidl.

66. PRINCE ALBERT NATIONAL PARK. Phil Bourque, Kalya Brunner, Alan Fehr, Kevin Ferrie, *Dan Frandsen,* Jay Frandsen, Judy Frandsen, Robin Heinz, Sue McLachlan, Fiona McLachlan, Fiona Moreland, Alena Peterson, Murray Peterson, Angela Salzl, Terry Schneider, Jeff Weir.

67. QU'APPELLE. *Heather Wiebe,* Katelyn Wiebe, Nicole Wiebe, Randy Wiebe.

68. QU'APPELLE VALLEY DAM. Ryan Dudragne, Robert Johanson, Nick Saunders, Jan Shadick, Stan Shadick, Marten Stoffel, Guy Wapple, *Michael Williams*.

69. RAYMORE. *Val Harris*, Sheila Lamont.

70. REGINA. Lionel Bonneville, Stéphane Bonneville, Alan Brokofsky, Lyn Brokofsky, Lola Mae Crawley, Ron Crawley, Jim Elliott, Ruth Englund, Bob Ewart, Shirley Friel, Shirley Gerloch, Trevor Herriott, *Dale Hjertaas*, Paule Hjertaas, Phyllis Ilsley, Rhéal Laroche, Lucille Lipka, Mike Lipka, Lauren Mang, Jim Nordquist, Catherine Parkinson, Brett Quiring, Jacqueline Roy, Margaret Skeel, Michael Soroski, Frank Switzer, May Switzer, Andrea Ulrich.

71. ROULEAU. Allan McGratten, Noreen McGratten, *Patricia Sterzuk*.

72. ROUND LAKE (Qu'Appelle Valley). Jaxon Finkas, *Boyd Metzler*, Mary Ward, Pat Ward.

73. SALTCOATS. Arden Bradford, Donna Bradford, Walter Brygadier, Davis Daniels, Joan Farquharson, Walter Farquharson, Jim Jowsey, *Shirley Jowsey*, Cole Kirkham, Brian Louttit, John Sawkey, Val Trowell, Rob Wilson.

74. SASKATCHEWAN LANDING PROVINCIAL PARK. Keith McCrie, Ty McCrie, David Noble, Mike Redmond, Glen Seymour, Cecil Smith, *Dan Zazelenchuk,* Ray Zeller.

75. SASKATCHEWAN RIVER FORKS. Carman Dodge, *Don Weidl*.

76. SASKATOON. Darlene Aikman, Ray Aikman, Tony Allen, Alison Baudru, Lou Baudru, Neva Bayliss, Joe Bergerman, Jim Beveridge, Janny Bos, Eveline Boudreau, Heinz Buchman, Annemarie Buchmann-Gerber, Jackie Cates, Mike Chorney, Paul Coutu, Vi Coutu, Ewen Coxworth, Yvonne Cuttle, Bill Davenport, Arla Delver, Ron Delver, Lorne Duczek, Anne Dzus, Marlene Dzus, Melanie Elliott, Kathy Exner, Joan Feather, Cathy Fry, Joe Fry, Martin Gerard, Stephane Gerard, Ritchie Gifford, Mary Gilliland, Valerie Girling, Bob Godwin, Mike Gollop, Bob Green, May Haga, Audrey Hall, Anne Hanbidge, Helen Hanbidge, John Hanbidge, Katie Hanbidge, Marlene Hanbidge, Peter Hardie, Kaija Harris, Donna Haugen, Cathy Holtslander, Stuart Houston, Andrea Hull, Kathryn Hull, Peter Hull, Calum James, Dane James, Gail James, Julie Jensen, Ron Jensen, Richard Kerbes, Eileen Konkin, Fred Konkin, Gordon Koshinsky, Hannah Koshinsky, Margaret Koshinsky, Gerard Lahey, John Lavery, Anna Leighton, Ted Leighton, Marilyn McElheran, Bob McNaughton, Kathy

Meeres, Ted Melville, David Miller, Larry Mitchell, Hilda Noton, Alison Philips, Amanda Plante, Marella Rosta, Mary Jean Roy, Craig Salisbury, Lorriene Salisbury, Trish Santo, Nick Saunders, Marjorie Scharf, Maureen Scharf, Murray Scharf, Doug Schmeiser, Irene Schmeiser, Linda Schnedar, Albert Schondelmeier, Marten Stoffel, Margot Taylor, Philip Taylor, Mary Toews, Guy Wapple, George West, Shirley West, Bev Will, *Michael Williams,* Jim Wood, Stan Woynarski, Dan Zazelenchuk, Norman Zlotkin.

77. SAWYER LAKE. Maureen Blight, Louise Kilby, Kit Krozser, *David Weiman.*

78. SKULL CREEK. *Ray Bennetto,* Sharon Bennetto.

79. SNOWDEN. Dale Debbler, Sylvia Debbler, *Irene Hagel*, Audrey Holiday, Annett Kirby, Lillian Kuzniar, Florence McAuley, Carol Mardell, Linda Patton, Jack Pickett, Karen Priestley, Valerie Rein, Bill Schemenauer, Vera Schemenauer, Bev Smears.

80. SOMME. Shirley Billeter, Sharon Birch, Edwin Brehmer, Irene Brehmer, Florence Chase, Lorne Chase, Mike Grewacheski, Barbara Hooper, Eldon Hooper, *Ronald Hooper,* Gordon Johnson, Elsie Kerr.

81. SQUAW RAPIDS. Ryan Dudragne, *Val Harris*, Sheila Lamont, Guy Wapple.

82. STENEN (Crystal Lake). Frances Buryk, Peter Buryk.

83. SWIFT CURRENT. James Beattie, Bonnie Currie, Norris Currie, Laurent Dudragne, Mary Ann Dudragne, Ryan Dudragne, Dave Green, Ester Green, Gerald Handley, Leonard Head, Hugh Henry, Joanne Jensen, Robert Jensen, Frank Rempel, Dan Sawatzky, Harold Steppuhn, Suh Steppuhn, *Irene Stinson*, Kae Waters, Betty Welgan, Ron Welgan.

84. TOGO. Marlene Brock, Donna Dewores, Lindy Dewores, Barb Elsasser, *Doug Elsasser,* Ed King, Louise King, William Koreliuk, Edith Mann, Fred Mann, Helen Tomochko, Claudia Zengl.

85. VICEROY-BENGOUGH. *Rob Wapple.*

86. WEYBURN. *Ross Douglas*, John Ferrier, Norm Flaten, Doyle Thomas, Val Thomas.

87. WHITE BEAR. Floyd Jordheim, Sig Jordheim, *Dan Zazelenchuk.*

88. WHITEWOOD. Bethany Ashfield, Brett Ashfield, Joe Ashfield, Paul Ashfield, Tom Ede, Joyce Jordan, Mavis Kay, Joyce Kydd, Florence Luhtala, Jean Meadows, Ila Meszaros, *Boyd Metzler,* Donna Mohr, Rod Mohr, John Pollock, Lenora Santo, Dawn Vennard, Diane Veresh.

89.WINGARD-FORT CARLTON. *Myron Barton*, Jeaninne Forseille, Mitch Forseille, Laurel Jensen, Neal Nicolas, Ruth Prosser, Kelly Schnell, Carol Vaughn.

90. YORKTON. Bill Anaka, Joyce Anaka, Mae Ann Chilman, Mavin Fairclough, Pat Fletcher, Cheryl Fraser, Robert Graham, Harley Large, George Maben, Joye Muir, Gloria Rathgeber, Dorothy Riesz, Ray Riesz, *Geoffrey Rushowick*, Patrick Rushowick, Dorothy Skene, Garry Shury, Stan William, John Young.

*White-winged Crossbill seen in Elbow during the Christmas Bird Count in December 2008.* *N. Saunders*

Table 1-1 Weather and Snow Cover

| Locality | Date | Minimum Temp (°C) | Maximum Temp (°C) | Minimum Wind (km/hr) | Maximum Wind (km/hr) | Minimum Smow (cm) | Maximum Snow (cm) | Sky A.M. | Sky P.M. |
|---|---|---|---|---|---|---|---|---|---|
| Archerwill | 23 Dec 2008 | -30 | -24 | 13 | 19 | 15 | 15 | mostly clear | mostly clear |
| Armit | 31 Dec 2008 | -28 | -20 | 0 | 20 | 10 | 25 | overcast | overcast |
| Avonlea | 28 Dec 2008 | -9 | -15 | 0 | 10 | 5 | 15 | clear | light snow |
| Bangor | | -33 | -22 | 12 | 19 | 10 | 36 | light fog | overcast |
| Biggar | 27 Dec 2008 | -35 | -24 | 10 | 20 | 0 | 20 | clear | clear |
| Birch Hills | 16 Dec 2008 | -29 | -23 | 1 | 1 | 15 | 20 | mostly clear | mostly clear |
| Briercrest | 31 Dec 2008 | -20 | -13 | 0 | 25 | 5 | 10 | overcast | light snow |
| Broadview | 26 Dec 2008 | -15 | -13 | 0 | 10 | 25 | 30 | overcast | partly cloudy |
| Cabri | 24 Dec 2008 | -25 | -20 | 6 | 11 | 4 | 8 | clear | clear |
| Candle Lake | 31 Dec 2008 | -30 | -24 | 2 | 2 | 25 | 30 | overcast | mostly clear |
| Christopher Lake | 4 Jan 2009 | -32 | -34 | 0 | 0 | | | | mostly clear |
| Churchbridge | 3 Jan 2009 | -23 | -17 | 5 | 19 | 20 | 40 | overcast | partly cloudy |
| Clark's Crossing | 20 Dec 2008 | -25 | -24 | 15 | 24 | 10 | 30 | overcast | overcast |
| Codette Lake | 1 Jan 2009 | -22 | -23 | 10 | | 20 | 25 | light snow | partly cloudy |
| Coronach | 5 Jan 2009 | -19 | -10 | 0 | 10 | 10 | 30 | overcast | partly cloudy |
| Craven | 20 Dec 2008 | -30 | -25 | 10 | 25 | 20 | 60 | mostly clear | mostly clear |
| Creighton | 2 Jan 2009 | -31 | -24 | 0 | 10 | 20 | 60 | clear | mostly clear |
| Crooked Lake | 23 Dec 2008 | -28 | -24 | 15 | 20 | 6 | 20 | clear | clear |
| Crooked River | 27 Dec 2009 | -25 | -15 | 2 | 3 | 20 | 30 | clear | mostly clear |
| Cypress Hills P.P. | 28 Dec 2008 | -4 | -8 | 3 | 3 | | | mostly clear | heavy snow |
| Dorintosh | 5 Jan 2009 | -18 | -15 | 10 | 30 | 20 | 30 | overcast | light snow |
| Duck Lake | 22 Dec 2008 | -34 | -25 | 0 | 0 | 10 | 15 | partly cloudy | clear |
| Duval | 28 Dec 2008 | -11 | -13 | 0 | 15 | 0 | 10 | partly cloudy | overcast |
| Eastend | 4 Jan 2009 | -21 | -17 | 12 | 19 | 5 | 50 | clear | clear |
| Ellisboro | 29 Dec 2008 | -27 | -21 | 0 | 5 | 5 | 12 | mostly clear | partly cloudy |
| Endeavour | 14 Dec 2008 | -36 | -26 | 0 | 3 | 7 | 10 | cloudy | partly cloudy |
| Estevan | 4 Jan 2009 | -35 | -24 | 10 | 20 | 0 | 20 | clear | clear |
| Estuary North | 4 Jan 2009 | -32 | -24 | 2 | 5 | 6 | 8 | clear | clear |
| Fenton | 15 Dec 2008 | -32 | -24 | 15 | 15 | 8 | 10 | clear | clear |
| Fort Qu'appelle | 18 Dec 2008 | -22 | -20 | 5 | 5 | 5 | 8 | clear | clear |
| Gardiner Dam | 15 Dec 2008 | -32 | -24 | 10 | 20 | 0 | 10 | mostly clear | mostly clear |
| Good Spirit Lake | 27 Dec 2008 | -27 | -22 | 2 | 10 | 15 | 10 | clear | clear |
| Grasslands N.P. | 24 Dec 2008 | -30 | -19 | 0 | 2 | 10 | 20 | mostly clear | |
| Grayson | 24 Dec 2008 | -25 | -14 | 0 | 10 | 2 | 15 | cloudy | clear |
| Harris | 22 Dec 2008 | -35 | -23 | 5 | 15 | 0 | 10 | mostly clear | clear |
| Hepburn | 2 Jan 2009 | -20 | -25 | 20 | 35 | 5 | 10 | light snow | light snow |
| Holbein | 2 Jan 2009 | -24 | -22 | 4 | 9 | 18 | | partly cloudy | partly cloudy |
| Hudson Bay | 4 Jan 2009 | -30 | | 10 | | 25 | 30 | clear | |
| Imperial | 25 Dec. 2008 | -24 | -11 | 6 | 10 | 8 | 20 | overcast | overcast |
| Indian Head | 27 Dec 2008 | -20 | -9 | 6 | 19 | 10 | 15 | clear | mostly clear |
| Kelvington | 27 Dec 2008 | | -20 | 2 | 2 | 16 | | overcast | light snow |
| Kenaston | 30 Dec 2008 | -25 | -18 | 0 | 10 | 10 | | clear | partly cloudy |
| Kenosee Lake | 29 Dec 2008 | -20 | -14 | 15 | 20 | 10 | 40 | clear | mostly clear |
| Ketchen | 26 Dec 2008 | -21 | -18 | 15 | 20 | 27 | 33 | partly cloudy | cloudy |
| Kindersley North | 26 Dec 2008 | -19 | -15 | 2 | 2 | 5 | 8 | partly cloudy | clear |

Table 1-2 Weather and Snow Cover

| Locality | Date | Minimum Temp (°C) | Maximum Temp (°C) | Minimum Wind (km/hr) | Maximum Wind (km/hr) | Minimum Snow (cm) | Maximum Snow (cm) | Sky A.M. | Sky P.M. |
|---|---|---|---|---|---|---|---|---|---|
| Kinistino | 31 Dec 2008 | -27 | -23 | 2 | 5 | 4 | 20 | overcast | overcast |
| Kinloch | 29 Dec 2008 | -23 | -20 | 5 | 10 | 25 | 28 | clear | clear |
| Kutawagan Lake | 27 Dec 2008 | -20 | -14 | 0 | 10 | 2 | 20 | partly cloudy | cloudy |
| Kyle | 30 Dec 2008 | -23 | -10 | 2 | 30 | 10 | 20 | partly cloudy | light snow |
| La Ronge | 26 Dec 2008 | -23 | -20 | 5 | 10 | 30 | 40 | clear | clear |
| Last Mountain Lake | 3 Jan 2009 | -33 | -24 | 10 | 30 | 0 | 40 | partly cloudy | partly cloudy |
| Leader North | 1 Jan 2009 | -30 | -18 | 0 | 5 | 10 | 12 | mostly clear | mostly clear |
| Love-Torch River | 21 Dec 2008 | -34 | -25 | 12 | 19 | 23 | 30 | clear | clear |
| Luseland | 5 Jan 2009 | -35 | -25 | 2 | 11 | 18 | 36 | mostly clear | mostly clear |
| Macdowall | 23 Dec 2008 | -32 | -25 | 0 | 0 | 10 | 10 | clear | clear |
| Matador | 28 Dec 2008 | -10 | -9 | 0 | 20 | 15 | 20 | overcast | overcast |
| Mayview | 30 Dec 2008 | -34 | -26 | 0 |  | 16 |  | clear | clear |
| Meadow Lake | 26 Dec 2008 | -24 | -20 | 20 | 29 | 5 | 30 |  | clear |
| Moose Mountain | 2 Jan 2009 | -19 | -16 | 5 | 10 | 6 | 10 | overcast | overcast |
| Morse | 30 Dec 2008 | -13 | -11 | 30 | 39 | 10 | 50 | clear | overcast |
| Nipawin | 2 Jan 2009 | -30 | -21 | 6 | 20 | 8 | 21 | clear | overcast |
| Nisbet Forest West | 27 Dec 2008 | -14 | -10 | 5 | 15 | 15 | 20 | partly cloudy | mostly clear |
| Pierce Lake | 28 Dec 2008 | -24 | -14 | 9 | 16 | 15 |  | mostly clear | mostly clear |
| Pike Lake | 3 Jan 2009 | -34 | -31 | 9 | 18 | 20 | 30 | mostly clear | clear |
| Prince Albert | 14 Dec 2008 | -33 | -30 | 2 | 5 | 8 | 12 | clear | clear |
| Prince Albert N.P. | 19 Dec 2008 | -24 | -20 | 1 | 1 | 10 | 20 | overcast | overcast |
| Qu'appelle | 30 Dec 2008 | -24 | -19 | 2 | 5 |  |  | clear | mostly clear |
| Qu'appelle Dam | 14 Dec 2008 | -32 | -29 | 9 | 22 | 10 | 30 | cloudy | mostly clear |
| Raymore | 25 Dec 2008 | -20 | -7 | 0 | 10 | 10 | 25 | partly cloudy | cloudy |
| Regina | 26 Dec 2008 | -19 | -16 | 28 | 35 | 10 | 25 | overcast | overcast |
| Rouleau | 1 Jan 2009 | -31 | -28 | 2 | 5 | 15 | 40 | mostly clear | mostly clear |
| Round Lake | 26 Dec 2008 | -13 | -13 | 10 | 26 | 4 | 25 | partly cloudy | overcast |
| Saltcoats | 27 Dec 2008 |  |  |  |  |  |  |  |  |
| Sask. Landing P.P. | 21 Dec 2008 | -39 | -25 | 0 | 10 | 5 | 30 | clear | clear |
| Sask. River Forks | 17 Dec 2008 | -26 | -21 | 2 | 5 | 25 | 30 | overcast | partly cloudy |
| Saskatoon | 26 Dec 2008 | -25 | -21 | 9 | 18 | 10 | 20 | overcast | mostly clear |
| Sawyer Lake | 31 Dec 2008 | -27 | -19 | 3 | 10 | 20 |  | clear | cloudy |
| Skull Creek | 27 Dec 2008 | -18 | -18 | 30 | 39 | 30 | 60 | overcast | overcast |
| Snowden | 5 Jan 2009 | -35 | -24 | 2 | 39 | 17 | 34 | clear | mostly clear |
| Somme | 2 Jan 2009 | -29 | -22 | 10 | 15 | 20 | 60 | clear | partly cloudy |
| Squaw Rapids | 1 Jan 2009 | -22 | -18 | 0 | 10 | 20 | 30 | overcast | partly cloudy |
| Stenen | 1 Jan 2009 | -28 | -20 | 0 |  | 38 | 47 | clear | clear |
| Swift Current | 27 Dec 2008 | -12 | -4 | 17 | 32 | 6 | 15 | clear | mostly clear |
| Togo | 4 Jan 2009 | -28 | -25 | 20 | 35 | 30 | 40 | mostly clear | partly cloudy |
| Viceroy-Bengough | 21 Dec 2008 | -32 | -25 | 0 | 15 | 25 | 70 | clear | mostly clear |
| Weyburn | 27 Dec 2008 |  |  | 12 |  |  |  | clear | mostly clear |
| White Bear | 5 Jan 2009 | -10 | -3 | 2 | 25 | 5 | 30 | partly cloudy | light snow |
| Whitewood | 28 Dec 2008 | -12 | -7 | 0 | 5 | 10 | 25 | overcast | overcast |
| Wingard-Ft. Carlton | 3 Jan 2009 | -33 | -29 | 5 | 12 | 20 | 25 | clear | clear |
| Yorkton | 19 Dec 2008 | -26 | -24 | 11 | 15 | 10 | 13 | light snow | light snow |

Table 2-1 Effort and Habitat Coverage

| | Effort | | | | | | Habitat Coverage (%) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Locality** | Particpants | Km on foot | Hours on foot | Km by vehicle | Hous by vehicle | Hours at feeders | Evergreen forest | Mixedwood forest | Deciduous forest | Aspen grove/farmland | Aspen grove/prairie | Native prairie | Tame pasture | Farmland | Farmsteads | Urban | Open water | Riparian | Shield, bog,swamp | Widl Fruit |
| Archerwill | 7 | 3.0 | 0.6 | | | 30.0 | | 30 | 10 | | | | 5 | 50 | 5 | | | | | f |
| Armit | 3 | 0.5 | 0.5 | 185 | 6.5 | 0.5 | | 40 | | 5 | | | 5 | 15 | 10 | 25 | | | | p |
| Avonlea | 5 | 1.0 | 0.5 | 130 | 6.5 | 0.5 | | | 10 | | | 10 | 15 | 45 | 5 | 14 | 1 | | | p |
| Bangor | 8 | | | | | 20.0 | | | | 10 | | | | | 90 | | | | | p |
| Biggar | 5 | 4.0 | 4.0 | 284 | 9.5 | 2.0 | | | | 23 | | | | 33 | | 44 | | | | f |
| Birch Hills | 4 | 6.0 | 7.5 | 107 | 4.5 | 4.0 | | | 10 | 30 | | | | 30 | 10 | 10 | | 10 | | f |
| Briercrest | 2 | | | 110 | 4.2 | 4.0 | | | | | | | | 80 | 5 | 15 | | | | |
| Broadview | 5 | 3.5 | 1.5 | 155 | 6.5 | 2.0 | | | 20 | 40 | | 5 | | 25 | 5 | 5 | | | | f |
| Cabri | 1 | 2.0 | 1.0 | 118 | 3.8 | | | | | | | | | | | | | | | p |
| Candle Lake | 10 | 8.0 | 3.0 | 143 | 12.0 | 3.0 | 20 | 20 | 30 | | | | | | | 30 | | | | f |
| Christopher Lake | 1 | | 2.0 | | | | | 100 | | | | | | | | | | | | p |
| Churchbridge | 7 | | | 109 | 12.0 | 28.0 | | | | 40 | | | | 40 | 15 | 5 | | | | f |
| Clark's Crossing | 23 | 16.7 | 11.9 | 567 | 26.0 | 2.0 | | | | 21 | 5 | 4 | | 10 | 23 | 30 | 1 | 6 | | g |
| Codette Lake | 6 | 1.5 | 1.0 | 110 | 5.0 | 2.0 | | 10 | 5 | 30 | | | | 30 | 20 | | 5 | | | |
| Coronach | 1 | 3.0 | 1.0 | 128 | 6.5 | | | | | | | 10 | 5 | 55 | 5 | 15 | 10 | | | |
| Craven | 13 | 6.0 | 2.0 | 420 | 16.0 | | | | | 35 | 25 | | | | 10 | 30 | | | | g |
| Creighton | 2 | 5.0 | 1.5 | 196 | 5.3 | 1.5 | 10 | 10 | 10 | | | | | | | 10 | | | 60 | g |
| Crooked Lake | 1 | 0.5 | 0.5 | 115 | 3.5 | | | | 30 | 20 | 10 | | | 10 | 10 | | 20 | | | f |
| Crooked River | 7 | 1.0 | 0.5 | 75 | 1.5 | 12.0 | | 40 | | | | | | 40 | 20 | | | | | g |
| Cypress Hills P.P. | 6 | 8.0 | 4.5 | 15 | 1.0 | 2.0 | 39 | 40 | 8 | | | 10 | | | 2 | | 1 | | | g |
| Dorintosh | 2 | 1.0 | 0.3 | 40 | 5.0 | 4.0 | 60 | | | | | | | 40 | | | | | | e |
| Duck Lake | 4 | 3.0 | 2.0 | 82 | 5.0 | 0.3 | 10 | 20 | 10 | 10 | | | | 40 | | 10 | | | | |
| Duval | 4 | 4.0 | 1.0 | 252 | 8.0 | 0.5 | | | | 25 | 20 | 5 | 5 | 20 | 15 | 10 | | | | p |
| Eastend | 10 | 4.5 | 1.5 | 150 | 5.0 | 2.0 | 5 | | 10 | | 20 | 10 | | 30 | 10 | 15 | | | | f |
| Ellisboro | 2 | | | 98 | 5.5 | 1.5 | | | | | | | | 50 | | | | 50 | | f |
| Endeavour | 1 | 2.5 | 2.0 | 20 | 2.0 | 3.0 | | 5 | 10 | 20 | | 5 | | 10 | 40 | 10 | | | | f |
| Estevan | 4 | 5.0 | 5.0 | 173 | 5.3 | 2.0 | | | | | | | | 17 | | 35 | 8 | 40 | | f |
| Estuary North | 1 | | 0.5 | | 2.5 | 3.0 | | | | | | | | | | | | | | p |
| Fenton | 3 | 1.0 | 0.5 | 103 | 4.5 | | | | | | | | | | | | | | | p |
| Fort Qu'appelle | 16 | 1.6 | 0.5 | 220 | 16.0 | 5.0 | | | 10 | 30 | | | | 10 | 15 | 30 | 5 | | | e |
| Gardiner Dam | 5 | 8.0 | 7.5 | 328 | 10.8 | | | | | 8 | | | | 45 | | 4 | 36 | 7 | | g |
| Good Spirit Lake | 8 | 4.0 | 2.0 | 101 | 6.0 | 1.5 | | 5 | 5 | 5 | | 5 | 5 | 30 | 5 | 40 | | | | f |
| Grasslands N.P. | 9 | 2.0 | 2.0 | 105 | 14.0 | | | | | | | 50 | | 40 | | 10 | | | | |
| Grayson | 4 | 9.0 | 3.0 | 110 | 5.0 | 0.5 | | | 10 | 30 | 10 | | | 20 | 10 | 15 | 5 | | | |
| Harris | 5 | 3.0 | 3.0 | 191 | 7.5 | 1.0 | | | | 17 | | | | 64 | | 19 | | | | g |
| Hepburn | 2 | | | 320 | 9.0 | | | | | 100 | | | | | | | | | | p |
| Holbein | 2 | | | | | 6.5 | | | | 100 | | | | | | | | | | g |
| Hudson Bay | 10 | | | | | 20.0 | | 40 | | | | | | | 50 | 10 | | | | e |
| Imperial | 1 | 2.0 | 0.5 | 159 | 5.5 | | | | | 1 | 1 | 1 | 2 | 92 | 2 | 1 | | | | p |
| Indian Head | 27 | 4.0 | 2.0 | 145 | 6.0 | 20.0 | | | | 10 | 5 | | 10 | 70 | 4 | 1 | | | | g |
| Kelvington | 2 | | | | | 7.0 | | | | | | | | | 100 | | | | | g |
| Kenaston | 1 | 1.0 | 1.0 | 160 | 5.5 | 0.5 | | | | 10 | | | | 70 | 10 | 10 | | | | |
| Kenosee Lake | 2 | 0.5 | 0.5 | 113 | 3.5 | 0.5 | | 5 | 40 | 10 | 5 | | | | | 40 | | | | g |
| Ketchen | 1 | 0.8 | 1.0 | 50 | 1.5 | 6.5 | | | | 30 | | | 20 | 20 | 20 | 10 | | | | |
| Kindersley North | 2 | 1.0 | 0.5 | 88 | 5.0 | | | | | | | | | | | | | | | |

Table 2-2 Effort and Habitat Coverage

| Locality | Particpants | Km on foot | Hours on foot | Km by vehicle | Hous by vehicle | Hours at feeders | Evergreen forest | Mixedwood forest | Deciduous forest | Aspen grove/farmland | Aspen grove/prairie | Native prairie | Tame pasture | Farmland | Farmsteads | Urban | Open water | Riparian | Shield, bog,swamp | Widl Fruit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kinistino | 2 | 11.0 | 9.5 | 15 | 2.0 | 2.0 |  | 30 |  |  |  |  | 30 | 20 | 20 |  |  |  |  | e |
| Kinloch | 7 | 7.0 | 2.5 | 136 | 8.0 | 12.0 | 15 | 20 | 20 | 20 |  |  |  |  | 25 |  |  |  |  | g |
| Kutawagan Lake | 2 | 0.5 | 0.3 | 167 | 6.0 | 0.7 |  |  |  | 5 | 5 | 10 | 20 | 30 | 15 | 15 |  |  |  | p |
| Kyle | 6 | 6.0 | 2.5 | 359 | 14.0 |  |  |  |  |  | 2 | 26 | 5 | 63 | 1 | 1 |  | 2 |  | f |
| La Ronge | 7 |  |  | 47 | 2.5 | 9.0 | 10 | 5 |  |  |  |  |  |  |  | 85 |  |  |  | g |
| Last Mountain Lake | 2 | 0.5 | 0.5 | 221 | 8.0 | 0.5 |  |  |  | 5 | 5 | 10 | 20 | 40 | 5 | 15 |  |  |  | f |
| Leader North | 1 | 4.0 | 2.0 | 15 | 2.0 | 3.0 |  |  |  |  |  | 50 |  | 40 | 10 |  |  |  |  | f |
| Love-Torch River | 20 |  |  | 232 | 10.0 | 26.0 | 10 | 10 |  | 60 |  |  |  |  | 10 | 10 |  |  |  | g |
| Luseland | 8 | 2.0 | 1.5 | 210 | 6.0 | 3.0 |  |  |  | 70 |  |  | 5 | 10 | 5 | 10 |  |  |  | g |
| Macdowall | 4 | 0.5 | 0.3 | 45 | 2.8 | 2.0 |  | 5 |  | 50 | 5 |  | 5 | 10 | 20 | 5 |  |  |  |  |
| Matador | 2 | 2.0 | 1.0 | 75 | 3.5 |  |  |  |  |  |  | 85 | 10 | 2 |  |  |  | 3 |  | g |
| Mayview | 1 |  |  |  |  | 4.0 |  | 90 |  |  |  |  | 10 |  |  |  |  |  |  | p |
| Meadow Lake | 7 | 8.0 | 2.0 | 225 | 3.0 | 5.0 |  | 40 |  |  |  |  |  | 30 |  | 30 |  |  |  | g |
| Moose Mountain | 4 |  | 0.2 | 194 | 11.0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | f |
| Morse | 11 | 9.0 | 4.0 | 419 | 21.0 | 0.3 |  |  |  |  |  |  | 3 | 90 | 7 |  |  |  |  | g |
| Nipawin | 18 | 10.0 | 3.0 | 298 | 16.0 | 30.0 | 20 | 10 |  | 5 |  |  |  | 30 | 10 | 20 | 5 |  |  | g |
| Nisbet Forest West | 6 | 1.0 | 1.0 | 12 | 4.0 | 3.0 | 20 |  | 25 | 50 |  |  |  |  |  | 5 |  |  |  | g |
| Pierce Lake | 2 | 3.0 | 2.0 | 125 | 3.4 |  |  | 70 |  | 25 |  |  |  |  |  |  | 5 |  |  |  |
| Pike Lake | 29 | 23.0 | 13.7 |  | 25.0 |  |  |  | 15 | 10 |  |  | 5 | 15 | 15 | 40 |  |  |  | e |
| Prince Albert | 15 | 10.3 | 5.4 | 315 | 21.0 |  | 20 |  |  | 20 |  |  |  | 10 | 5 | 45 |  |  |  | p |
| Prince Albert N.P. | 15 | 43.7 | 29.3 | 22 | 0.3 |  | 20 | 60 |  |  |  |  |  |  |  | 20 |  |  |  | f |
| Qu'appelle | 4 | 1.0 | 2.0 |  | 14.0 | 1.0 |  |  |  | 25 | 5 |  | 10 | 50 | 10 |  |  |  |  | g |
| Qu'appelle Dam | 8 | 5.0 | 5.0 | 413 | 12.6 |  |  |  | 15 | 15 | 10 | 5 | 15 | 10 | 10 | 15 | 5 |  |  | f |
| Raymore | 2 | 0.5 | 0.5 | 152 | 8.0 | 0.5 |  |  |  | 20 |  |  | 10 | 30 | 15 | 25 |  |  |  | p |
| Regina | 28 | 48.0 | 18.0 | 451 | 18.5 | 4.0 |  |  | 5 | 5 | 10 |  | 5 | 25 | 10 | 40 |  |  |  | f |
| Rouleau | 3 |  |  | 97 | 3.5 | 0.5 |  |  |  |  |  |  |  | 80 | 10 | 10 |  |  |  | p |
| Round Lake | 4 | 0.5 | 0.5 | 144 | 4.0 | 4.0 |  |  | 30 | 30 |  |  |  | 15 | 15 |  | 10 |  |  | g |
| Saltcoats | 13 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Sask. Landing P.P. | 8 | 3.0 | 1.5 | 215 | 9.5 |  |  |  |  | 20 |  | 25 | 5 | 39 | 1 |  |  | 10 |  | f |
| Sask. River Forks | 2 | 5.0 | 2.0 | 79 | 5.0 |  | 20 | 20 | 20 | 10 |  |  | 5 | 20 | 5 |  |  |  |  | f |
| Saskatoon | 102 | 101 | 61.4 | 878 | 51.2 | 126 | 2 |  | 1 | 11 | 2 | 1 | 1 | 13 | 5 | 57 | 4 | 3 |  | g |
| Sawyer Lake | 4 | 44.0 | 8.0 | 248 | 8.0 | 4.0 |  | 40 |  | 30 |  |  | 20 | 10 |  |  |  |  |  | f |
| Skull Creek | 2 |  |  | 50 | 3.0 | 3.0 |  |  | 10 |  |  | 10 | 10 | 60 | 10 |  |  |  |  | p |
| Snowden | 14 |  | 1.5 | 130 | 3.5 | 3.0 |  | 10 |  |  |  |  |  | 20 | 60 | 10 |  |  |  | e |
| Somme | 12 | 3.0 | 1.0 | 193 | 6.0 | 5.0 |  | 30 |  | 30 |  |  |  |  | 30 | 10 |  |  |  | p |
| Squaw Rapids | 4 | 4.0 | 3.5 | 294 | 13.5 | 0.5 |  | 60 |  |  |  |  |  | 15 | 5 |  | 20 |  |  | p |
| Stenen | 2 |  |  |  | 3.0 | 2.0 | 25 | 25 | 25 | 25 |  |  |  |  |  |  |  |  |  | f |
| Swift Current | 22 | 63.0 | 27.0 | 264 | 25.0 |  |  |  |  |  |  | 15 |  | 80 |  | 5 |  |  |  | p |
| Togo | 11 | 1.0 | 0.5 | 45 | 3.0 | 16.0 | 15 | 15 | 20 | 20 | 10 | 5 | 10 | 5 |  |  |  |  |  | g |
| Viceroy-Bengough | 1 | 0.5 | 0.5 | 144 | 7.0 | 0.5 |  |  |  |  |  | 50 | 15 | 15 | 10 | 10 |  |  |  | f |
| Weyburn | 5 |  |  | 29 | 5.0 |  |  |  |  |  |  |  |  | 75 |  | 25 |  |  |  |  |
| White Bear | 3 | 2.0 | 1.0 | 100 | 4.0 |  |  |  |  |  |  | 25 | 5 | 68 | 1 |  |  | 1 |  | f |
| Whitewood | 18 | 8.5 | 5.0 | 404 | 15.0 | 37.0 |  |  |  | 20 |  |  |  | 10 | 10 | 60 |  |  |  | f |
| Wingard-Ft. Carlton | 7 |  |  | 120 | 6.0 | 15.0 |  | 5 | 5 | 30 | 20 |  | 10 | 20 | 10 |  |  |  |  | g |
| Yorkton | 19 | 10.0 | 1.0 | 123 | 12.0 | 9.0 |  |  |  |  | 10 |  |  |  | 10 | 80 |  |  |  | e |

Table 3-1 Species found on 8 or more counts ( ) = seen during Count Period (CP)

| Species | Archerwill 23 Dec 2008 | Armit 31 Dec 2008 | Avonlea 28 Dec 2008 | Bangor | Biggar 27 Dec 2008 | Birch Hills 16 Dec 2008 | Briercrest 31 Dec 2008 | Broadview 26 Dec 2008 | Cabri 24 Dec 2008 | Candle Lake 31 Dec 2008 | Christopher Lake 4 Jan 2009 | Churchbridge 3 Jan 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada Goose | | | | | | | | | | | | |
| Mallard | | | | | 5 | | | | | | | |
| Common Goldeneye | | | | | | | | | | | | |
| Gray Partridge | | | 58 | | 2 | | 36 | | 21 | | | |
| Ring-necked Pheasant | | | | | | | | | | | | |
| Ruffed Grouse | 1 | | | | | 1 | | 2 | | 9 | | |
| Sharp-tailed Grouse | | | 6 | 28 | 61 | | | 6 | 4 | | | |
| Bald Eagle | (1) | | | | | 1 | | | | 1 | | |
| Northern Goshawk | | | 1 | | 1 | 1 | | | | 1 | (1) | |
| Golden Eagle | | | | | 1 | | | | | | | |
| Merlin | | | | | | | | 1 | | | | |
| Rock Pigeon | | | 74 | 6 | 98 | 104 | 34 | 52 | 3 | | | |
| Eurasian Collared-Dove | | | (4) | | 5 | | 2 | | | | | |
| Great Horned Owl | 1 | | | 2 | 2 | | | 4 | 6 | | | |
| Snowy Owl | | | 1 | | | 1 | 1 | | 2 | | | |
| Northern Hawk Owl | | 1 | | | | | | 1 | | 1 | | |
| Great Gray Owl | | | | | | | | | | 1 | | 1 |
| Short-eared Owl | | | | | 1 | | | | | | | |
| Downy Woodpecker | 8 | 1 | 1 | 8 | 6 | 3 | | 1 | | 3 | 2 | 6 |
| Hairy Woodpecker | 6 | 1 | | 10 | | 13 | | 1 | | 10 | 1 | 6 |
| Northern Flicker | | | | | 1 | | | | | | | |
| Pileated Woodpecker | (1) | | | | | 1 | | | | 1 | | 1 |
| Northern Shrike | | | | | 2 | | | 3 | | | | (1) |
| Gray Jay | (4) | 2 | | | | | | | | 29 | | |
| Blue Jay | 26 | 5 | | | 2 | 3 | | | | 7 | 4 | |
| Black-billed Magpie | 14 | 15 | 6 | 44 | 121 | 60 | 1 | 6 | 14 | 24 | | 10 |
| Common Raven | 2 | 20 | (1) | 51 | 44 | 64 | 1 | 27 | 3 | 118 | 2 | 29 |
| Horned Lark | | | 63 | | 34 | 3 | 77 | 5 | 1414 | | | |
| Black-capped Chickadee | 62 | 11 | 1 | 67 | 24 | 56 | | 23 | | 65 | 4 | 38 |
| Boreal Chickadee | 2 | | | | | | | | | 32 | 4 | |
| Red-breasted Nuthatch | (1) | 1 | 2 | | 2 | 1 | | | | 5 | | 2 |
| White-breasted Nuthatch | 1 | | | 2 | 1 | 2 | | (1) | | 1 | 2 | |
| American Robin | | | | | | 5 | | | 6 | | | |
| European Starling | | | 10 | | | 7 | 1 | (1) | | | | |
| Bohemian Waxwing | | | | | 37 | 232 | | 2 | 30 | | | |
| Dark-eyed Junco | | | | | | | | | | | 1 | |
| Snow Bunting | (400) | 350 | 10 | 85 | 2977 | 2 | 21 | 364 | | 9 | | 350 |
| Pine Grosbeak | 168 | 16 | | | | 23 | | | | 101 | 23 | |
| House Finch | | | 1 | | 81 | | | | | | | |
| White-winged Crossbill | | | | | | 2 | | | | 3 | | |
| Common Redpoll | 211 | 36 | | 27 | 303 | 121 | | 35 | | 16 | 22 | 68 |
| Hoary Redpoll | 6 | 3 | | | 2 | 4 | | (1) | | | | 3 |
| Pine Siskin | 1 | | | | 1 | | | | | | | 1 |
| Evening Grosbeak | 37 | 49 | | | | | | | | 20 | 7 | |
| House Sparrow | (25) | | 114 | 93 | 281 | 105 | 61 | 115 | 238 | | | 90 |
| Total Birds Count Day | 546 | 514 | 368 | 423 | 4095 | 815 | 246 | 655 | 1741 | 467 | 72 | 610 |
| Total Birds only in CP | 433 | 0 | 5 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 1 |
| Total Species Count Day | 15 | 15 | 15 | 12 | 26 | 24 | 11 | 18 | 11 | 26 | 11 | 14 |
| Total Species only in CP | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 1 |

Table 3-2 Species found on 8 or more counts ( ) = seen during Count Period (CP)

| Species | Clark's Crossing 20 Dec 2008 | Codette Lake 1 Jan 2009 | Coronach 5 Jan 2009 | Craven 20 Dec 2008 | Creighton 2 Jan 2009 | Crooked Lake 23 Dec 2008 | Crooked River 27 Dec 2009 | Cypress Hills P.P 28 Dec 2008 | Dorintosh 5 Jan 2009 | Duck Lake 22 Dec 2008 | Duval 28 Dec 2008 | Eastend 4 Jan 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada Goose | | | 110 | | | | | | | | | |
| Mallard | | | 1658 | | | 21 | | | | | | |
| Common Goldeneye | 36 | 1 | | | | 3 | | | | | | |
| Gray Partridge | 30 | | 118 | 1 | | | 6 | | | | 6 | 19 |
| Ring-necked Pheasant | | | | 1 | | | | (1) | | | | 40 |
| Ruffed Grouse | | 1 | | | | | 5 | | 2 | 2 | | |
| Sharp-tailed Grouse | 11 | | | 18 | (10) | | | | | | 47 | 15 |
| Bald Eagle | 1 | | | | | 1 | | | | | | |
| Northern Goshawk | | | | | 1 | | | (1) | | | | |
| Golden Eagle | | | | | | | | | | | 1 | 3 |
| Merlin | 2 | | | | | | | | | | | |
| Rock Pigeon | 232 | 5 | | 3 | 135 | | | | | 70 | 74 | 20 |
| Eurasian Collared-Dove | | | | | | | | | | | | 1 |
| Great Horned Owl | 4 | | | 1 | | | | | | | 3 | 1 |
| Snowy Owl | 3 | | 2 | 2 | | | | (1) | | | | 1 |
| Northern Hawk Owl | | | | | | | | | | | | |
| Great Gray Owl | | | | | | | | | | (1) | | |
| Short-eared Owl | | | | | | | | | | | | |
| Downy Woodpecker | 5 | 1 | | 11 | (2) | 1 | 2 | 4 | 3 | 2 | | 15 |
| Hairy Woodpecker | 8 | 3 | | 8 | 4 | 3 | | 4 | 2 | 2 | 3 | 2 |
| Northern Flicker | | | | | | | | | | | | 1 |
| Pileated Woodpecker | | 1 | | | 1 | 1 | | | 1 | 2 | | |
| Northern Shrike | | | | | | | | | | | | 1 |
| Gray Jay | | 1 | | | 10 | | 3 | | 4 | 1 | | |
| Blue Jay | 2 | 53 | | 25 | | 1 | 10 | | 3 | 6 | | 2 |
| Black-billed Magpie | 153 | 40 | 1 | 40 | 13 | 5 | 7 | 3 | 34 | 8 | 39 | 71 |
| Common Raven | 102 | 51 | | 17 | 201 | 10 | 64 | 2 | 28 | 29 | 19 | |
| Horned Lark | | | 88 | 11 | | | | | | | 2 | 40 |
| Black-capped Chickadee | 126 | 29 | | 110 | 13 | 55 | 31 | 13 | 23 | 10 | 61 | 37 |
| Boreal Chickadee | | | | | 3 | | | | | 3 | | |
| Red-breasted Nuthatch | 2 | | | 5 | | | | 5 | 2 | 1 | | 16 |
| White-breasted Nuthatch | 1 | | | 5 | | 6 | 2 | 1 | 1 | | | 2 |
| American Robin | 1 | | | 6 | | | | | | | 2 | (2) |
| European Starling | 16 | | | 35 | | | 1 | | | | 18 | |
| Bohemian Waxwing | | 1 | | | 189 | 9 | | | | 12 | 22 | 88 |
| Dark-eyed Junco | | 1 | | 1 | | | | | | | | 6 |
| Snow Bunting | 245 | | | 440 | | 520 | 30 | (1) | 31 | 70 | 955 | 26 |
| Pine Grosbeak | | 57 | | | 15 | | 38 | 7 | 15 | 4 | | 27 |
| House Finch | 36 | | | 2 | | | | | | | | 15 |
| White-winged Crossbill | 1 | | | 4 | 1 | | | | | 2 | | 8 |
| Common Redpoll | 332 | 93 | | 58 | 61 | 2 | 31 | 4 | 20 | | 3 | 128 |
| Hoary Redpoll | | | | 2 | 7 | | 3 | | | | | |
| Pine Siskin | | | | | | | | | | | | 26 |
| Evening Grosbeak | | 26 | | | (8) | | 56 | | 8 | | | |
| House Sparrow | 1389 | 16 | 52 | 65 | | | 65 | (20) | | 235 | 306 | 104 |
| Total Birds Count Day | 2742 | 380 | 2030 | 872 | 732 | 639 | 354 | 56 | 178 | 464 | 1561 | 749 |
| Total Birds only in CP | 0 | 0 | 0 | 2 | 20 | 0 | 0 | 24 | 0 | 1 | 0 | 2 |
| Total Species Count Day | 27 | 17 | 8 | 25 | 16 | 15 | 16 | 11 | 16 | 20 | 16 | 31 |
| Total Species only in CP | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 5 | 0 | 1 | 0 | 1 |

Table 3-3 Species found on 8 or more counts ( ) = seen during Count Period (CP)

| Species | Ellisboro 29 Dec 2008 | Endeavour 14 Dec 2008 | Estevan 4 Jan 2009 | Estuary North 4 Jan 2009 | Fenton 15 Dec 2008 | Fort Qu'Aappelle 18 Dec 2008 | Gardiner Dam 15 Dec 2008 | Good Spirit Lake 27 Dec 2008 | Grasslands N.P. 24 Dec 2008 | Grayson 24 Dec 2008 | Harris 22 Dec 2008 | Hepburn 2 Jan 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada Goose | | | 9464 | | | 20 | 846 | | | 5 | | |
| Mallard | | | 1558 | | | 12 | 8603 | | | 35 | | |
| Common Goldeneye | | | 7 | | | 1 | 64 | | | 3 | | |
| Gray Partridge | (12) | | 9 | | 8 | | 17 | | 38 | | 11 | |
| Ring-necked Pheasant | | | 231 | 114 | | | | | 65 | | | |
| Ruffed Grouse | | (1) | | | | (1) | | 1 | | | | |
| Sharp-tailed Grouse | 21 | | 21 | 11 | | 10 | 41 | | 19 | 3 | 9 | |
| Bald Eagle | | | | | 1 | 1 | 14 | | | 1 | | |
| Northern Goshawk | | 1 | | 3 | | | | | | | 1 | |
| Golden Eagle | | | | | | | 1 | | 2 | | | |
| Merlin | | | (1) | | | (1) | | | | | | |
| Rock Pigeon | 16 | 12 | 145 | | 63 | 23 | 61 | | 3 | | 30 | 5 |
| Eurasian Collared-Dove | | | 41 | | | (1) | | | | | | |
| Great Horned Owl | (1) | | 1 | | | 1 | 3 | | | | 1 | |
| Snowy Owl | | | | | | 1 | 7 | | | | 1 | |
| Northern Hawk Owl | | | | | 1 | | | | | | | |
| Great Gray Owl | | | | | | | | | | | | |
| Short-eared Owl | | | | 1 | | | | | | | 1 | |
| Downy Woodpecker | 4 | 3 | 4 | 1 | 5 | 13 | 3 | 8 | | 4 | | |
| Hairy Woodpecker | 2 | 1 | 3 | 1 | 1 | 10 | | 5 | | 2 | | |
| Northern Flicker | | | 1 | 1 | | 1 | 1 | | | | | |
| Pileated Woodpecker | | | | 1 | | (1) | | (1) | | | | |
| Northern Shrike | 2 | | (1) | | | (1) | | | | | | |
| Gray Jay | | 2 | | | | | | | | | | |
| Blue Jay | 1 | 3 | 2 | 6 | 2 | 8 | 4 | 7 | | 3 | | |
| Black-billed Magpie | 40 | 5 | 11 | 19 | 42 | 48 | 55 | 22 | 7 | 43 | 121 | 19 |
| Common Raven | 42 | 37 | (1) | | 35 | 70 | 16 | 28 | | 22 | 25 | 12 |
| Horned Lark | | | 35 | | | 1 | 52 | | | | 8 | 37 |
| Black-capped Chickadee | 13 | 17 | 9 | 4 | 17 | 59 | 21 | 39 | | 38 | 9 | |
| Boreal Chickadee | | | | | | | | 1 | | | 1 | |
| Red-breasted Nuthatch | | | (1) | 1 | | 1 | 1 | 1 | | | | |
| White-breasted Nuthatch | 1 | | 4 | | | 10 | | 6 | | 3 | | |
| American Robin | 2 | | | | | (1) | 16 | | | | | |
| European Starling | | 20 | 2 | | | 12 | 35 | | | | | |
| Bohemian Waxwing | | | | 13 | 214 | | 4 | 8 | | 22 | | |
| Dark-eyed Junco | | | 3 | | | | | | | | | |
| Snow Bunting | 505 | 21 | 115 | | 22 | 105 | 4306 | 1 | 72 | 120 | 3927 | 1680 |
| Pine Grosbeak | | 17 | | 44 | 38 | (1) | 15 | 18 | | | | |
| House Finch | | | 14 | | | 9 | | | | | 5 | |
| White-winged Crossbill | | | | | | | | | | | | |
| Common Redpoll | 81 | 63 | 17 | | 148 | 120 | 6 | 21 | | 8 | | 350 |
| Hoary Redpoll | 8 | | (4) | | | 3 | | | | | | |
| Pine Siskin | | | | | | (16) | 1 | | | | | |
| Evening Grosbeak | | 49 | | | | | | | | | | |
| House Sparrow | 50 | 35 | 110 | 12 | 62 | 181 | 390 | 210 | 35 | 111 | 123 | 25 |
| Total Birds Count Day | 789 | 286 | 11829 | 234 | 662 | 732 | 14753 | 376 | 241 | 425 | 4273 | 2129 |
| Total Birds only in CP | 13 | 1 | 9 | 0 | 0 | 25 | 0 | 1 | 0 | 0 | 0 | 0 |
| Total Species Count Day | 16 | 15 | 30 | 16 | 16 | 28 | 32 | 15 | 8 | 18 | 15 | 8 |
| Total Species only in CP | 2 | 1 | 6 | 0 | 0 | 9 | 0 | 1 | 0 | 0 | 0 | 0 |

Table 3-4 Species found on 8 or more counts ( ) = seen during Count Period (CP)

| Species | Holbein 2 Jan 2009 | Hudson Bay 4 Jan 2009 | Imperial 25 Dec. 2008 | Indian Head 27 Dec 2008 | Kelvington 27 Dec 2008 | Kenaston 30 Dec 2008 | Kenosee Lake 29 Dec 2008 | Ketchen 26 Dec 2008 | Kindersley North 26 Dec 2008 | Kinistino 31 Dec 2008 | Kinloch 29 Dec 2008 | Kutawagan Lake 27 Dec 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada Goose | | | | | | | | | | | | |
| Mallard | | | | | | | | | | | | |
| Common Goldeneye | | | | | | | | | | | | |
| Gray Partridge | | | | 11 | | 14 | | | (13) | | | |
| Ring-necked Pheasant | | | | | | | | | | | | |
| Ruffed Grouse | 5 | 4 | | 4 | 1 | | | 14 | | 7 | 8 | |
| Sharp-tailed Grouse | | | 4 | 43 | | 6 | | | | | | 52 |
| Bald Eagle | | | | | | | | | | | (1) | |
| Northern Goshawk | | | | | | | | 1 | | | | |
| Golden Eagle | | | | | | | | | | | | |
| Merlin | | | (1) | 1 | | | | | | | | |
| Rock Pigeon | | | 76 | 72 | | 19 | | 1 | 20 | | 21 | 23 |
| Eurasian Collared-Dove | | | | | | | | | | | | |
| Great Horned Owl | | | | 3 | | 1 | | | 3 | | 1 | 2 |
| Snowy Owl | | (1) | 4 | 1 | | | | | 1 | | | |
| Northern Hawk Owl | | | | | | | | | | | (1) | |
| Great Gray Owl | | 1 | | | | | | | | | | |
| Short-eared Owl | | | | | | | | | (2) | | | 1 |
| Downy Woodpecker | 2 | 3 | | 23 | 2 | | 5 | 4 | (1) | 1 | 1 | |
| Hairy Woodpecker | 3 | 10 | | 16 | 3 | | 12 | 3 | | 2 | 11 | |
| Northern Flicker | | | | | | | | | | | | |
| Pileated Woodpecker | | (1) | | 1 | | | | | | 1 | (1) | |
| Northern Shrike | | | | | | (1) | | 1 | | | | |
| Gray Jay | | | | | | | | | | 3 | 8 | |
| Blue Jay | 8 | 37 | | 16 | 4 | | 26 | 7 | | 13 | 27 | |
| Black-billed Magpie | 1 | 4 | 32 | 51 | 2 | 16 | 17 | 21 | 27 | 103 | 37 | 38 |
| Common Raven | 1 | 167 | 17 | 67 | 2 | 5 | 12 | 19 | 1 | 9 | 25 | 9 |
| Horned Lark | | | 4 | | | | | | 8 | | | 4 |
| Black-capped Chickadee | 7 | 93 | | 103 | 6 | 10 | 58 | 14 | | 5 | 46 | 1 |
| Boreal Chickadee | 1 | 2 | | | | | | | | | 2 | |
| Red-breasted Nuthatch | 2 | | | 21 | | | 3 | | | 1 | 1 | |
| White-breasted Nuthatch | | 12 | | 12 | 1 | | 6 | 2 | | | 4 | |
| American Robin | | | | 1 | | | | | | | | |
| European Starling | | | 11 | | | | | | | | | |
| Bohemian Waxwing | | | | 200 | | | | 5 | | | | |
| Dark-eyed Junco | 1 | | | | | | | | | | | |
| Snow Bunting | | 110 | 406 | 384 | (100) | 500 | 150 | 30 | 1000 | 225 | 205 | 1534 |
| Pine Grosbeak | 8 | 89 | | | 18 | | 11 | 32 | | 52 | 45 | |
| House Finch | | | | 18 | | | | | | | | |
| White-winged Crossbill | | | | | | | 3 | | | | | |
| Common Redpoll | 22 | 93 | | 97 | 14 | 34 | 75 | 72 | | 2 | 58 | 102 |
| Hoary Redpoll | | | | | | | | 6 | | | 8 | 1 |
| Pine Siskin | | 1 | | 9 | 12 | | | | | | (7) | |
| Evening Grosbeak | 14 | 229 | | | | | 11 | 9 | | 33 | 22 | |
| House Sparrow | | | 136 | 355 | | 37 | 4 | 72 | 50 | | 5 | 175 |
| Total Birds Count Day | 75 | 855 | 690 | 1550 | 65 | 642 | 394 | 313 | 1110 | 457 | 535 | 1942 |
| Total Birds only in CP | 0 | 2 | 1 | 0 | 100 | 2 | 0 | 0 | 16 | 0 | 10 | 0 |
| Total Species Count Day | 13 | 15 | 9 | 26 | 11 | 10 | 15 | 18 | 8 | 14 | 19 | 12 |
| Total Species only in CP | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 3 | 0 | 4 | 0 |

Table 3-5 Species found on 8 or more counts ( ) = seen during count period (CP)

| Species | Kyle 30 Dec 2008 | La Ronge 26 Dec 2008 | Last Mountain Lake 3 Jan 2009 | Leader North 1 Jan 2009 | Love-Torch River 21 Dec 2008 | Luseland 5 Jan 2009 | Macdowall 23 Dec 2008 | Matador 28 Dec 2008 | Mayview 30 Dec 2008 | Meadow Lake 26 Dec 2008 | Moose Mountain 2 Jan 2009 | Morse 30 Dec 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada Goose | | | | | | | | | | | | (100) |
| Mallard | | | | | | | | | | | | |
| Common Goldeneye | | | | | | | | | | | | |
| Gray Partridge | 56 | | 26 | 5 | 7 | 3 | | | | | | 824 |
| Ring-necked Pheasant | | | | 50 | | | | | | | | 11 |
| Ruffed Grouse | | (4) | | | 17 | | (4) | | 2 | 1 | | |
| Sharp-tailed Grouse | 36 | | 9 | 20 | 1 | | 4 | | | | 111 | 85 |
| Bald Eagle | | | | 1 | (1) | | | | | | | |
| Northern Goshawk | | | | | | | 1 | | | | | |
| Golden Eagle | (1) | | | 2 | | | | | | | | 1 |
| Merlin | | | | | | | | | | | | |
| Rock Pigeon | 139 | | 5 | 6 | (5) | 44 | 1 | | | | 2 | 93 |
| Eurasian Collared-Dove | 1 | | | | | | | | | | | |
| Great Horned Owl | 13 | | 1 | 1 | 1 | (1) | | | | | | 17 |
| Snowy Owl | 6 | | | 1 | | (1) | | 1 | | | | 8 |
| Northern Hawk Owl | | | | | (1) | | | | | | | |
| Great Gray Owl | | | | | (1) | | | | | 1 | | |
| Short-eared Owl | 1 | | | 2 | | | | 6 | | | | (1) |
| Downy Woodpecker | 1 | 20 | | 2 | 17 | 1 | 1 | | 1 | 3 | 8 | 1 |
| Hairy Woodpecker | | 5 | | | 17 | 1 | 2 | | | 3 | 14 | |
| Northern Flicker | | | | | | | | | | | | |
| Pileated Woodpecker | | (1) | | 1 | (1) | | (1) | | | | 1 | |
| Northern Shrike | 1 | | | | (1) | | | | | | | 1 |
| Gray Jay | | 5 | | | 11 | | | | 2 | 1 | | |
| Blue Jay | 3 | 3 | | 1 | 33 | 2 | | | 4 | 4 | 13 | 1 |
| Black-billed Magpie | 70 | 2 | 12 | 22 | 89 | 50 | 9 | 2 | | 29 | 19 | 37 |
| Common Raven | 5 | 181 | 11 | | 155 | 6 | 12 | 2 | | 58 | 36 | 2 |
| Horned Lark | 24 | | 15 | 25 | | 72 | | | | | | 911 |
| Black-capped Chickadee | 4 | 53 | 1 | 2 | 116 | 5 | 7 | | 4 | 17 | 49 | |
| Boreal Chickadee | | 4 | | | 2 | | | | 2 | | | |
| Red-breasted Nuthatch | | 1 | | | 4 | 2 | | | 1 | 5 | | 1 |
| White-breasted Nuthatch | 2 | | | | 4 | | 1 | | | 1 | 6 | |
| American Robin | | 1 | | | | | | | | | | (1) |
| European Starling | 3 | | 3 | 5 | | | | | | | | 13 |
| Bohemian Waxwing | 1 | | | 20 | 71 | (21) | 30 | | | | 144 | |
| Dark-eyed Junco | | | | | | | | | | 2 | | |
| Snow Bunting | 499 | | 697 | | 1694 | 555 | 350 | 3632 | | 5 | 75 | 3416 |
| Pine Grosbeak | 2 | 94 | 1 | | 163 | | 8 | | 14 | 41 | | 3 |
| House Finch | | | 1 | | | (9) | | | | 2 | | |
| White-winged Crossbill | | | | | (5) | | | | | | | (4) |
| Common Redpoll | 55 | 68 | 7 | | 432 | | 4 | | | 2 | 525 | 44 |
| Hoary Redpoll | | (1) | | | 5 | | (2) | | | | | |
| Pine Siskin | | | | | | 16 | (1) | | | | 2 | |
| Evening Grosbeak | | 9 | | | 323 | | (10) | | | 8 | | |
| House Sparrow | 698 | | 227 | 30 | 87 | 85 | (2) | | | 19 | 1 | 620 |
| Total Birds Count Day | 1620 | 459 | 1018 | 196 | 3252 | 843 | 430 | 3643 | 30 | 203 | 1006 | 6091 |
| Total Birds only in CP | 2 | 9 | 0 | 0 | 17 | 32 | 20 | 0 | 0 | 0 | 0 | 106 |
| Total Species Count Day | 21 | 16 | 16 | 18 | 22 | 14 | 13 | 5 | 8 | 19 | 15 | 21 |
| Total Species only in CP | 2 | 5 | 0 | 0 | 9 | 4 | 6 | 0 | 0 | 0 | 0 | 4 |

Table 3-6 Species found on 8 or more counts ( ) = seen during Count Period (CP)

| Species | Nipawin 2 Jan 2009 | Nisbet Forest W 27 Dec 2008 | Pierce Lake 28 Dec 2008 | Pike Lake 3 Jan 2009 | Prince Albert 14 Dec 2008 | Prince Albert N.P. 19 Dec 2008 | Qu'Appelle 30 Dec 2008 | Qu'Appelle Dam 14 Dec 2008 | Raymore 25 Dec 2008 | Regina 26 Dec 2008 | Rouleau 1 Jan 2009 | Round Lake 26 Dec 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada Goose | | | | | 4 | | | 236 | | 65 | | 2 |
| Mallard | | | 1 | | 1 | | | 111 | | 41 | | 16 |
| Common Goldeneye | 1 | | 4 | | | | | 5 | | | | |
| Gray Partridge | 8 | | | 4 | | | | 3 | | 103 | 24 | |
| Ring-necked Pheasant | | | | | | | | | | 1 | | |
| Ruffed Grouse | 4 | (2) | 2 | 1 | 1 | 2 | | | | 1 | | |
| Sharp-tailed Grouse | 6 | | 5 | 41 | 1 | | 1 | 77 | 2 | 21 | | |
| Bald Eagle | 1 | | 1 | | | | | 2 | | | | |
| Northern Goshawk | (1) | | | | 1 | | | | 1 | | | |
| Golden Eagle | | | | | | | | | | | | 1 |
| Merlin | | | | | | | | | | 3 | | |
| Rock Pigeon | 2 | 18 | | 46 | 223 | | 29 | 20 | 19 | 707 | 1 | |
| Eurasian Collared-Dove | | | | | | | | 11 | | | | |
| Great Horned Owl | 2 | | | 5 | (1) | | 1 | 3 | 3 | 3 | 5 | 1 |
| Snowy Owl | | 1 | | | | | | 3 | | 7 | 7 | |
| Northern Hawk Owl | | | | | | | | | | | | |
| Great Gray Owl | | | | | | | | | | | | |
| Short-eared Owl | | | | | | | | | | | 1 | |
| Downy Woodpecker | 8 | 5 | 1 | 25 | 13 | 1 | 1 | 2 | 2 | 12 | | 4 |
| Hairy Woodpecker | 7 | 3 | | 15 | 1 | 2 | 3 | 3 | 1 | 3 | | 4 |
| Northern Flicker | | | | 3 | | | | 1 | | 2 | | |
| Pileated Woodpecker | (1) | (1) | | 1 | | 3 | | | | | | 1 |
| Northern Shrike | | | | 2 | | | 1 | 1 | 2 | | | |
| Gray Jay | 3 | (1) | | | 1 | 1 | | | | | | |
| Blue Jay | 27 | 16 | | 24 | 8 | | | 10 | | 1 | | 2 |
| Black-billed Magpie | 34 | 28 | 32 | 150 | 124 | 25 | 29 | 34 | 16 | 40 | 3 | 8 |
| Common Raven | 433 | 85 | 31 | 38 | 165 | 31 | 77 | 5 | 15 | 20 | 2 | 7 |
| Horned Lark | | | | 5 | | | | 13 | | | | 3 |
| Black-capped Chickadee | 58 | 46 | 3 | 499 | 118 | 34 | 20 | 25 | 13 | 49 | | 33 |
| Boreal Chickadee | | 2 | | | | 19 | | | | | | |
| Red-breasted Nuthatch | 4 | | | 3 | | | | | 1 | 36 | | |
| White-breasted Nuthatch | 1 | 3 | | 17 | (1) | 2 | | | | 7 | | 5 |
| American Robin | 1 | | | 123 | | | | 40 | | 2 | | 1 |
| European Starling | 28 | | | 14 | | | | 7 | 22 | 39 | 5 | |
| Bohemian Waxwing | 1 | | | 37 | 652 | | | 69 | 64 | | | |
| Dark-eyed Junco | | | | 1 | | | | | | 8 | | 1 |
| Snow Bunting | 300 | 401 | 22 | 698 | 290 | | 650 | 749 | | 602 | 200 | 24 |
| Pine Grosbeak | 104 | 80 | 3 | 42 | 89 | 4 | | 17 | 9 | | | |
| House Finch | | | | 41 | | | | 2 | | 36 | | |
| White-winged Crossbill | | | | | 19 | | | 5 | 1 | 53 | | |
| Common Redpoll | 254 | 69 | 17 | 35 | 374 | 12 | 9 | 2 | 5 | 1 | | 1 |
| Hoary Redpoll | 1 | 1 | | | 2 | 8 | | | | | | |
| Pine Siskin | | | | | | | | | | | | |
| Evening Grosbeak | 240 | 2 | | 6 | 26 | | | | | | | |
| House Sparrow | 72 | | | 660 | 88 | 1 | | 344 | 226 | 1638 | 16 | 3 |
| Total Birds Count Day | 1601 | 760 | 122 | 2547 | 2202 | 149 | 837 | 1803 | 403 | 3509 | 264 | 117 |
| Total Birds only in CP | 2 | 4 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Species Count Day | 26 | 15 | 12 | 31 | 22 | 14 | 12 | 31 | 17 | 30 | 10 | 18 |
| Total Species only in CP | 2 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 3-7 Species found on 8 or more counts ( ) = seen during Count Period (CP)

| Species | Saltcoats 27 Dec 2008 | Sask. Landing P.P. 21 Dec 2008 | Sask. River Forks 17 Dec 2008 | Saskatoon 26 Dec 2008 | Sawyer Lake 31 Dec 2008 | Skull Creek 27 Dec 2008 | Snowden 5 Jan 2009 | Somme 2 Jan 2009 | Squaw Rapids 1 Jan 2009 | Stenen 1 Jan 2009 | Swift Current 27 Dec 2008 | Togo 4 Jan 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada Goose |  | 50 |  | 14 |  |  |  |  | 42 |  |  |  |
| Mallard |  |  |  | 9 |  |  |  |  |  |  | 4 |  |
| Common Goldeneye |  |  |  | 381 |  |  |  |  | 203 |  |  |  |
| Gray Partridge |  | 17 |  | 76 |  | 15 |  | 17 |  |  | 45 |  |
| Ring-necked Pheasant |  | 10 |  |  |  | 4 |  |  |  |  | 18 |  |
| Ruffed Grouse | 2 |  |  |  |  |  | 1 | (4) | 10 | 2 |  | 1 |
| Sharp-tailed Grouse | 18 | 32 | 3 | 15 |  | 60 |  | (6) | 15 |  |  | 16 |
| Bald Eagle |  | 1 | 1 | (1) | (1) | 1 |  | (2) | 2 |  |  | 2 |
| Northern Goshawk |  |  |  | 1 |  |  | 1 |  |  |  |  |  |
| Golden Eagle |  |  |  |  |  | 1 |  |  |  |  |  |  |
| Merlin |  |  |  | 2 |  |  |  |  |  |  | 1 |  |
| Rock Pigeon | 75 | 46 |  | 4313 |  | 7 | 11 | 2 |  |  | 759 | 2 |
| Eurasian Collared-Dove |  |  |  |  |  |  |  |  |  |  | 108 |  |
| Great Horned Owl | (1) | 6 |  | 3 |  | 1 |  |  |  |  |  |  |
| Snowy Owl | (1) | 2 |  | 2 |  | 2 |  |  |  |  | 1 | 1 |
| Northern Hawk Owl |  |  |  | 1 | 1 |  |  |  | 2 |  |  |  |
| Great Gray Owl |  |  |  |  |  |  | (1) |  |  |  |  |  |
| Short-eared Owl | (1) | 1 |  |  |  |  |  |  |  |  |  |  |
| Downy Woodpecker | 8 | 1 | 2 | 44 | 1 | 2 | 16 | 2 | 2 | 2 | 2 | 13 |
| Hairy Woodpecker | 13 | 1 | 6 | 25 | 1 | 1 | 17 | 2 | 2 | 2 |  | 17 |
| Northern Flicker | 1 | 1 |  | 9 |  |  |  |  |  |  | 1 |  |
| Pileated Woodpecker | (1) |  | 1 |  | (1) |  |  | (1) | 2 | 2 |  |  |
| Northern Shrike | (1) |  |  |  |  |  |  |  |  |  |  |  |
| Gray Jay |  |  |  |  | (1) |  | 4 | 4 | 3 | 1 |  |  |
| Blue Jay | 4 |  | 3 | 55 |  |  | 33 | 36 | 9 | 2 |  | 36 |
| Black-billed Magpie | 41 | 41 | 32 | 435 | 10 | 10 | 64 | 33 | 39 | 6 | 44 | 20 |
| Common Raven | 36 | (3) | 22 | 93 | 12 | 4 | 157 | 106 | 46 | 75 |  | 33 |
| Horned Lark | 2 | 27 |  |  |  | 3000 |  |  |  |  | 179 |  |
| Black-capped Chickadee | 68 | 1 | 25 | 765 | 16 | 16 | 80 | 79 | 23 | 10 | 5 | 86 |
| Boreal Chickadee |  |  | 5 |  |  |  | 9 |  | 7 |  |  | 2 |
| Red-breasted Nuthatch | 3 |  |  | 127 |  | 1 | 6 |  |  |  | 39 | 1 |
| White-breasted Nuthatch | 4 |  |  | 12 | (1) |  | 3 | 12 |  |  | 2 | 6 |
| American Robin |  |  |  | 2 |  |  |  |  |  |  |  |  |
| European Starling |  |  |  | 104 |  |  |  | 20 |  |  | 2 |  |
| Bohemian Waxwing | 320 |  | 1 | 200 |  |  |  |  |  |  |  |  |
| Dark-eyed Junco |  |  |  | 2 |  |  |  |  |  |  | 5 |  |
| Snow Bunting | 300 | 426 |  | 1099 | 1363 |  | 2537 | 319 | 1112 | 25 | 820 | 394 |
| Pine Grosbeak | 3 |  | 78 | 7 | 11 |  | 229 | 85 | 31 | 30 | 2 | 100 |
| House Finch |  |  |  | 686 |  |  |  |  |  |  | 54 |  |
| White-winged Crossbill |  |  | 7 | 40 |  |  |  |  | 4 |  | 21 |  |
| Common Redpoll | 245 | 57 | 54 | 87 |  | 30 | 205 | 63 | 88 | 40 | 18 | 107 |
| Hoary Redpoll | 5 |  |  | 1 |  |  |  |  | 1 |  |  | 4 |
| Pine Siskin | 26 |  |  | 46 |  |  |  |  |  | 6 | 9 |  |
| Evening Grosbeak | 2 |  | 38 |  | 1 |  | 211 | 106 | 17 | 25 |  | 66 |
| House Sparrow | 72 | 562 | 30 | 3746 |  | 50 | 80 | 51 | 5 |  | 1587 | 20 |
| Total Birds Count Day | 1249 | 1282 | 310 | 12519 | 1416 | 3218 | 3664 | 944 | 1676 | 228 | 3732 | 927 |
| Total Birds only in CP | 5 | 3 | 0 | 4 | 4 | 0 | 2 | 13 | 0 | 0 | 1 | 1 |
| Total Species Count Day | 22 | 18 | 18 | 39 | 9 | 19 | 18 | 18 | 26 | 14 | 28 | 20 |
| Total Species only in CP | 5 | 1 | 0 | 4 | 4 | 0 | 2 | 4 | 0 | 0 | 1 | 1 |

Table 3-8 Species found on 8 or more counts ( ) = seen during Count Period (CP)

| Species | Viceroy-Bengough 21 Dec 2008 | Weyburn 27 Dec 2008 | White Bear 5 Jan 2009 | Whitewood 28 Dec 2008 | Carlton 3 Jan 2009 | Yorkton 19 Dec 2008 | Totals Count Day | Totals only in Count Period | #Counts count day | # Counts only in count period |
|---|---|---|---|---|---|---|---|---|---|---|
| Canada Goose | | | | | | | 10858 | 100 | 12 | 1 |
| Mallard | | | | | | 15 | 12090 | 0 | 15 | 0 |
| Common Goldeneye | | | | | | | 709 | 0 | 12 | 0 |
| Gray Partridge | 172 | 141 | 29 | | (11) | | 1980 | 36 | 36 | 3 |
| Ring-necked Pheasant | | 8 | | | | | 553 | 1 | 12 | 1 |
| Ruffed Grouse | | | | 1 | 5 | 3 | 123 | 16 | 33 | 6 |
| Sharp-tailed Grouse | 22 | 37 | 12 | 21 | 18 | | 1125 | 16 | 48 | 2 |
| Bald Eagle | | | | | | | 33 | 7 | 17 | 6 |
| Northern Goshawk | | | (1) | | | | 16 | 4 | 14 | 4 |
| Golden Eagle | 2 | | 2 | | | | 17 | 1 | 11 | 1 |
| Merlin | | 1 | | | | 1 | 12 | 3 | 8 | 3 |
| Rock Pigeon | (3) | 132 | 106 | 38 | 20 | 1097 | 9463 | 8 | 59 | 2 |
| Eurasian Collared-Dove | | 9 | | | | | 178 | 5 | 8 | 2 |
| Great Horned Owl | 1 | 3 | 3 | 1 | 1 | | 115 | 4 | 39 | 4 |
| Snowy Owl | 4 | 1 | 3 | | 1 | | 79 | 4 | 31 | 4 |
| Northern Hawk Owl | | | | | 1 | | 9 | 2 | 8 | 2 |
| Great Gray Owl | | | | | 1 | | 5 | 3 | 5 | 3 |
| Short-eared Owl | | | | | | | 15 | 4 | 9 | 3 |
| Downy Woodpecker | 1 | 1 | | 16 | 4 | 14 | 429 | 3 | 74 | 2 |
| Hairy Woodpecker | | 1 | | 14 | 7 | 10 | 375 | 0 | 65 | 0 |
| Northern Flicker | | | | | | 1 | 25 | 0 | 14 | 0 |
| Pileated Woodpecker | | | | (1) | 1 | | 25 | 14 | 20 | 14 |
| Northern Shrike | | | (1) | 2 | | | 19 | 7 | 12 | 7 |
| Gray Jay | | | | (1) | 3 | | 102 | 7 | 22 | 4 |
| Blue Jay | | | | 2 | 4 | 15 | 674 | 0 | 58 | 0 |
| Black-billed Magpie | 3 | 10 | 75 | 79 | 12 | 29 | 3357 | 0 | 88 | 0 |
| Common Raven | | | | 46 | 9 | 235 | 3756 | 5 | 77 | 3 |
| Horned Lark | 205 | 211 | 44 | 9 | | | 6631 | 0 | 34 | 0 |
| Black-capped Chickadee | | | 6 | 129 | 51 | 104 | 4048 | 0 | 78 | 0 |
| Boreal Chickadee | | | | | | | 103 | 0 | 19 | 0 |
| Red-breasted Nuthatch | | | | (1) | | | 311 | 3 | 37 | 3 |
| White-breasted Nuthatch | | | | 31 | 3 | 3 | 213 | 3 | 44 | 3 |
| American Robin | | | | (1) | | 1 | 210 | 5 | 16 | 4 |
| European Starling | | 105 | 4 | 17 | | 4 | 563 | 1 | 29 | 1 |
| Bohemian Waxwing | | | (15) | (15) | | | 2698 | 51 | 30 | 3 |
| Dark-eyed Junco | | | | 1 | | | 33 | 0 | 13 | 0 |
| Snow Bunting | 90 | | 56 | 3614 | 320 | 76 | 49313 | 501 | 72 | 3 |
| Pine Grosbeak | | | | | 98 | 14 | 2243 | 1 | 52 | 1 |
| House Finch | | | 1 | 30 | | | 1034 | 9 | 18 | 1 |
| White-winged Crossbill | | | | | | | 174 | 9 | 16 | 2 |
| Common Redpoll | | | | 1312 | 51 | 103 | 7330 | 0 | 71 | 0 |
| Hoary Redpoll | | | | 20 | | | 104 | 8 | 23 | 4 |
| Pine Siskin | | | | 6 | | | 163 | 24 | 15 | 3 |
| Evening Grosbeak | | | | | 54 | | 1704 | 18 | 30 | 2 |
| House Sparrow | 285 | 305 | 510 | 367 | 15 | 325 | 18332 | 47 | 69 | 3 |
| Total Birds Count Day | 785 | 1101 | 851 | 5758 | 679 | 2058 | 142168 | | | |
| Total Birds only in CP | 3 | 0 | 18 | 26 | 11 | 0 | | 957 | | |
| Total Species Count Day | 10 | 15 | 13 | 22 | 21 | 19 | 92 | | | |
| Total Species only in CP | 1 | 0 | 4 | 8 | 1 | 0 | | 4 | | |

Table 4-1 Species found in fewer than 8 counts

| Species | Locality and Number ( *=Count Period) |
|---|---|
| Cackling Goose | Estevan (7), Gardiner Dam (8) |
| Tundra Swan | Crooked Lake (1), Grayson (1) |
| Northern Pintail | Fort Qu'Appelle (1) |
| Canvasback | Estevan (1), Fort Qu'Appelle (1) |
| Lesser Scaup | Estevan (7), Fort Qu'Appelle (2), Gardiner Dam (2) |
| Bufflehead | Qu'Appelle Dam (1) |
| Hooded Merganser | Squaw Rapids (2) |
| Common Merganser | Estevan (1), Gardiner Dam (156), Grayson (1), Prince Albert (1), Qu'Appelle Dam (1), Saskatoon (3), Squaw Rapids (4) |
| Spruce Grouse | Armit (3), Candle Lake (3), Creighton (2), La Ronge (2*), Love-Torch River (3), Saskatchewan River Forks (1) |
| Willow Ptarmigan | Creighton (76), La Ronge (9), Snowden (1*) |
| Wild Turkey | Broadview (7), Cypress Hills P.P. (5) |
| Northern Harrier | Swift Current (1) |
| Sharp-shinned Hawk | Archerwill (1*), Estevan (1*) |
| Cooper's Hawk | Saskatoon (1) |
| Red-tailed Hawk | Luseland (1), Saskatoon (1*), Swift Current (1) |
| Rough-legged Hawk | Estevan (2), Morse (1), Swift Current (2) |
| American Kestrel | Whitewood (1*) |
| Gyrfalcon | Clark's Crossing (1), Love-Torch River (1*) |
| Peregrine Falcon | Skull Creek (1) |
| Prairie Falcon | Gardiner Dam (1), Kyle (1*), White Bear (1*) |
| American Coot | Estevan (3) |
| Glaucous Gull | Gardiner Dam (2) |
| Mourning Dove | Estevan (1) |
| Northern Saw-whet Owl | Last Mountain Lake NWA (1), Saskatoon (1) |
| Am. 3-Toed Woodpecker | Candle Lake (4), Duck Lake (1), Saskatchewan River Forks (1), Squaw Rapids (1) |
| Black-backed Woodpecker | Candle Lake (1), Duck Lake (3), La Ronge (1), Love-Torch River (1*); Meadow Lake (1), Somme (2), Squaw Rapids (2) |
| Clark's Nutcracker | Togo (1*) |
| American Crow | Clark's Crossing (1), La Ronge (2), Regina (5), Saskatoon (7), Swift Current (1) |
| Mountain Chickadee | Swift Current (1*) |
| Brown Creeper | Clark's Crossing (1), La Ronge (1*), Saskatoon (1*), Yorkton (8) |
| Golden-crowned Kinglet | Regina (1), Saskatoon (1) |
| Townsend's Solitaire | Kenaston (1*), Pike Lake (1), Qu'Appelle Dam (1), Saltcoats (1) Swift Current (1) |
| Varied Thrush | Candle Lake (1), Saskatoon (1*) |
| Cedar Waxwing | Craven (1), Eastend (31), Fenton (3), Gardiner Dam (1), Indian Head (38), Saskatoon (101) |
| Spotted Towhee | Eastend (1) |
| Eastern Towhee | Candle Lake (1) |
| American Tree Sparrow | Eastend (1) |
| Song Sparrow | Indian Head (1) |
| White-throated Sparrow | Pike Lake (2), Saskatoon (2) |
| Harris's Sparrow | Eastend (1), Morse (1), Somme (5) |

Table 4-2 Species found in fewer than 8 counts

| **Species** | **Locality and Number (*=Count Period)** |
|---|---|
| White-crowned Sparrow | Skull Creek (12) |
| Lapland Longspur | Avonlea (20), Briercrest (11), Coronach (1), Qu'Appelle (16), Weyburn (136) |
| Rusty Blackbird | Indian Head (2), Pike Lake (1) |
| Brewer's Blackbird | Nipawin (1) |
| Common Grackle | Clark's Crossing (1), Duck Lake (1), Regina (2) |
| Brown-headed Cowbird | Estuary North (2) |
| Gray-crowned Rosy-Finch | Dorintosh (1) |
| Purple Finch | Churchbridge (5), Fort Qu'Appelle (8), Kenosee Lake (1), Pike Lake (7), Whitewood (2) |
| Red Crossbill | Cypress Hills P.P. (8), Whitewood (1*) |
| American Goldfinch | Craven (2*), Ellisboro (1), Fort Qu'Appelle (2*), Whitewood (5*) |

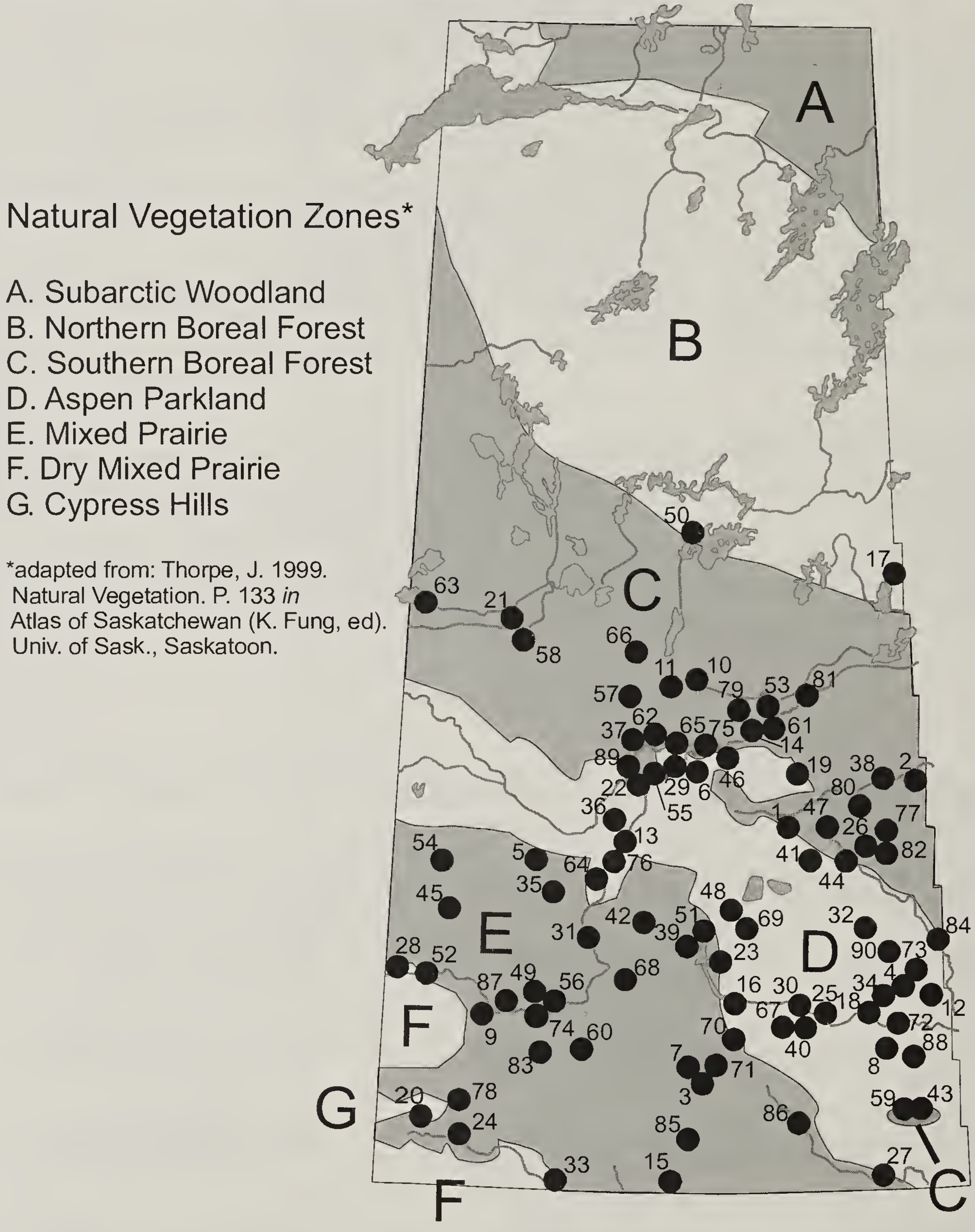
Table 5 Bird not identified to species

| **Category** | **Locality and Number (*=Count Period)** |
|---|---|
| Accipiter sp. | Saskatoon (1) |
| Hawk sp. | Hepburn (1), Last Mountain Lake NWA (1) |
| Woodpecker sp. | Prince Albert N.P. (4), Raymore (1), Squaw Rapids (2), |
| Nuthatch sp. | La Ronge (1) |

**Table 6.** New (in bold and italics) and tying high counts for individual species 2008. Count period results are in brackets.

| **LOCATION** | **2008 COUNT** | **SPECIES** | **PREVIOUS HIGH** | **LOCATION, YEAR** |
|---|---|---|---|---|
| ***Morse*** | ***824*** | ***Gray Partridge*** | ***728*** | ***Regina, 2003*** |
| ***Estevan*** | ***231*** | ***Ring-necked Pheasant*** | ***180*** | ***Bromhead, 2003*** |
| ***Creighton*** | ***76*** | ***Willow Ptarmigan*** | ***44*** | ***Creighton, 2007*** |
| Estevan | 1 | American Kestrel | 1 | 27 counts, north to Saskatoon |
| ***Saskatoon*** | ***4313*** | ***Rock Pigeon*** | ***3585*** | ***Saskatoon, 2002*** |
| ***Swift Current*** | ***108*** | ***Eurasian Collared-Dove*** | ***79*** | ***Swift Current, 2007*** |
| ***Whitewood*** | ***31*** | ***White-breasted Nuthatch*** | ***29*** | ***Pike Lake, 2005*** |
| Eastend | 1 | Spotted Towhee | 1 | 9 counts, north to Turtle Lake and Saskatoon |
| Candle Lake | 1 | Eastern Towhee | 1 | Regina, 2005 |
| ***Skull Creek*** | ***12*** | ***White-crowned Sparrow*** | **2** | Craven, 1999; Swift Current, 2003; Fort Walsh, 2004; Kyle, 2007 |
| ***Saskatoon*** | ***686*** | ***House Finch*** | ***667*** | ***Saskatoon, 2003*** |

**Figure 1.** Location of 2008 counts (numbers correspond to those in text under **Count areas and participants**).



* * *

*The richness I achieve comes from Nature, the source of my inspiration.*
*– Claude Monet*

**Table 7.** Population changes in numbers of selected species in 2008* compared to 2007 and the average for 5 years (2003-2007), based on the number of birds per party hour. A minus sign indicates a decrease from previous years.

| Species | % change from 2007 | % change from 2003-2007 | | % change from 2007 | % change from 2003-2007 |
|---|---|---|---|---|---|
| Canada Goose | -25 | -27 | American Crow | -41 | -41 |
| Mallard | 205 | 1 | Common Raven | 3 | 23 |
| Common Goldeneye | 12 | 19 | Horned Lark | 403 | 370 |
| Gray Partridge | 10 | 0 | Black-capped Chickadee | 7 | 7 |
| Ring-necked Pheasant | 203 | 168 | Boreal Chickadee | -5 | -14 |
| Ruffed Grouse | 41 | 28 | Red-breasted Nuthatch | -31 | -16 |
| Sharp-tailed Grouse | 7 | -29 | White-breasted Nuthatch | -7 | 11 |
| Bald Eagle | -22 | -49 | Brown Creeper | 25 | -53 |
| Northern Goshawk | 11 | -6 | Golden-crowned Kinglet | -77 | -94 |
| Golden Eagle | 18 | -30 | American Robin | 310 | 654 |
| Merlin | 7 | -17 | European Starling | -48 | 6 |
| Prairie Falcon | -89 | -86 | Bohemian Waxwing | -70 | -68 |
| Rock Pigeon | 23 | 38 | Cedar Waxwing | -35 | -24 |
| Great Horned Owl | -1 | -1 | American Tree Sparrow | -98 | -98 |
| Snowy Owl | 30 | 34 | Dark-eyed Junco | -75 | -81 |
| Great Gray Owl | -37 | -41 | Snow Bunting | 76 | 197 |
| Downy Woodpecker | 18 | 20 | Pine Grosbeak | 68 | 41 |
| Hairy Woodpecker | 15 | 14 | House Finch | 46 | 3 |
| American Three-toed Woodp | -62 | -37 | White-winged Crossbill | 327 | -23 |
| Black-backed Woodpecker | 39 | 13 | Common Redpoll | 33 | -10 |
| Northern Flicker | -32 | -37 | Hoary Redpoll | -20 | -11 |
| Pileated Woodpecker | 42 | -17 | Pine Siskin | 176 | -13 |
| Northern Shrike | -34 | -5 | American Goldfinch | -84 | -97 |
| Gray Jay | 13 | -12 | Evening Grosbeak | 86 | 44 |
| Blue Jay | 6 | 17 | House Sparrow | -1 | -13 |
| Black-billed Magpie | 34 | -5 | | | |

**As tremendous changes can occur in small sample sizes, only those species recorded on an annual average of six or more counts are included.*

*Study nature, love nature, stay close to nature. It will never fail you.*
*– Frank Lloyd Wright*

# OCCURRENCE OF CLARK'S GREBES AND THEIR HYBRIDS WITH WESTERN GREBES IN PRAIRIE CANADA

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## Abstract

A survey of Clark's Grebes and intermediates with Western Grebes in southern Saskatchewan and Manitoba in the spring of 2008 revealed that the proportion of Clark's Grebes could currently be limited to 1% or less. The influx of Clark's Grebes noticed during the 1990s that contributed to their increase up to 4% appears to have been of limited duration. Intermediates between both species made up about 3% of all grebes encountered. Observations in the nesting area of Pelican Lake, Manitoba, and of courtship displays confirmed that the rare Clark's Grebes and the hybrids have difficulties finding mates.

## Introduction

In 1985, the American Ornithologists' Union (AOU) followed the suggestions of Ratti,[14] Nuechterlein,[8] and Nuechterlein and Storer[11] and separated the Western Grebe into two species, the Western Grebe and the Clark's Grebe.[2] The genetic distance between the two grebe species based on DNA analysis is comparable to such distances in other closely related species.[1] The results of recent ecological studies predict that more closely related species produce more hybrids.[13] However, in mixed populations of Western and Clark's Grebes, assortative mating has been demonstrated,[7,8,9,10,11,14] and differences in the advertising call between species are critical to reproductive isolation.[9,10] According to Mayr (1942, tested by Randler[13]), species with common ranges hybridize to a lesser extent than those that overlap infrequently. Reproductive isolating mechanisms between Western and Clark's Grebes possibly work better in areas where both species are common.[8] Nuechterlein and Buitron suggested that interbreeding might be limited to late courting individuals with limited mate choice.[10]

Historically, light-phase birds (Clark's Grebes) were rare at the northern border of their range and represented less than 1% of the population in Canada.[17] Clark's Grebes were rare in Saskatchewan, although recent investigations found them to breed regularly at the northern and southern ends of Last Mountain Lake, at Reed Lake, and probably at Turtle Lake.[16] The earliest mention of a record of light-phase birds in Canada was by Nero (cited by Palmer[14]), who observed five of them in a colony of 500 grebes at Old Wives Lake, Saskatchewan. The first confirmed nesting of a pair of Clark's Grebes in Canada was reported from Pelican Lake, Manitoba, in 1986.[4] In 1973-1974, Nuechterlein observed no Clark's Grebes at Delta Marsh, Manitoba, where Eichhorst and Parkin found a total of 18 Clark's Grebes in June 1989, representing 1.2 to 1.8% of the grebe population there.[4] They suspected a recent influx of Clark's Grebes in the area, and in the early 1990s, up to 4% of 3,000 breeding pairs surveyed were Clark's Grebes.[10] As the local Western Grebes could lack experience to deal with the sudden presence of their sibling species, and being given the scarcity of Clark's Grebes in Canada, pairing could have been more random and may have provoked an increase of mixed pairings. Since the resulting hybrids have been proven to be fertile[4,9] and are expected to display high viability and fertility themselves,[13] the number of intermediates should then have increased.

In this study, I searched for Clark's Grebes and intermediates on select bodies of water in Manitoba and Saskatchewan. My objective was to determine whether Clark's Grebes increased in numbers and to what extent a possible increase could have affected the occurrence of intermediates.

## Materials and Methods

*Study Sites and Grebe Observations in 2008:* Last Mountain Lake (LML) is located midway between Saskatoon and Regina in south-central Saskatchewan. The northern end of this 233-km$^2$ lake is the Last Mountain Lake National Wildlife Area and Migratory Bird Sanctuary, which is designated a Ramsar Wetland of International Importance. Wetlands cover 21% of the protected area totaling over 15,600 hectares.[5] Grebe observations were conducted at two locations on the western shore of LML. Sailor's Bay, inside of the National Wildlife Area opposite the town of Imperial, was visited on 26 and 27 May 2008, and the grebes passing in front of a fixed observation point during a 6-hour period were scrutinized and photographed. On Triple T Beach, ca. 15 km south of the protected area near the village of Liberty, the same procedure was applied on 26 and 28 May 2008 during 4 hours of observation.

Buffalo Pound Lake (BPL), about 30 km northeast of Moose Jaw, is a prairie lake situated near the headwaters of the Qu'Appelle River. This eutrophic lake has a surface area of 29.5 km$^2$, and provincial Highway 2 divides its northern end.[6] The lake was visited on 28 May 2008 for 4 hours, and grebes present close to the new and the abandoned course of Highway 2 were scrutinized and photographed. A count of grebes present at the northern end of the lake was performed, using both highway courses and driving down for 6 km on the eastern shore.

Pelican Lake (PL), part of the Pembina River System, is 52.8 km$^2$ (22 km long and 2.4 km wide) and is located near the town of Ninette, south of Brandon, Manitoba. Its northern end was searched from 29 May to 1 June 2008 for 20 hours. Observations were conducted from a car along provincial Highway 23, and by walking along the pathway adjacent to it, as well as on the elevated eastern shoreline north of the highway. Additional observations were performed from provincial Highway 18 near the nesting area of grebes at the extreme north of the lake.

All sites visited were scrutinized from the shore, using a car as a blind where possible, and with the help of Zeiss binoculars (10×25). I took electronic pictures of grebes using a Konica Minolta Dynax 7D camera and a Sigma AF 800-mm lens. The photos were later analyzed on a computer using the program PhotoImpact (Ulead Systems Inc.).

*Delta Marsh Surveys in 2005:* H. den Haan (Field Station, University of Manitoba) kindly provided me with the results of two surveys executed at Delta Marsh, Manitoba, in 2005 in areas where Clark's Grebes were reported to increase in the 1990s.

*Identification of Grebe Species (Western vs. Clark's):* Species identification relied on bill color and differences in facial pattern (Fig. 1, see inside cover). A subdivision of diverging areas of the face into lores, above eye, behind eye, and below eye was used.[17] Individuals were classified as Clark's Grebes if they had an orange-yellow bill with a sharply defined black culmen, white lores, and the white of the side of the head extending to above the eyes.[18] The thin line of bare skin that extends from the base of the upper mandible to the eye was orange.[4] Individuals were classified as Western Grebes if they had a dull yellowish-green bill and the black of the crown extended to below the eyes.[18] The bare skin line below the lores was dark green.[4] It is noteworthy that in Clark's Grebes the extent of the white margin visible above the eye may vary, for instance during behavioral interactions, depending on whether crest feathers are erect or relaxed.[15]

All grebes not entirely conforming to the descriptions of Western Grebes above were assessed against the non-breeding and immature plumages of known individuals. Once immature and non-breeding status could be ruled out, these grebes were categorized as intermediates. Grebes were sexed using the criterion of bill size dimorphism.[17] The activity of Clark's Grebes and intermediates was recorded whenever possible, and the relevant field notes are summarized.

## Results

*Occurrence of Clark's Grebes and intermediates in 2008:* All occurrences of Clark's Grebes and individuals intermediate in coloration and their field characteristics are summarized in Table 1. For all three locations combined (LML, BPL, and PL), of 556 grebes identified, four (0.7%) were Clark's Grebes and 16-19 or 2.9-3.4% were intermediates.

*LML:* I observed 113 grebes in total on LML (80 at Sailor's Bay and 33 at Triple T Beach). Only one Clark's Grebe (LMS 01) was seen on 26 May 2008 at Sailor's Bay and none at Triple T Beach, while five intermediates occurred at Sailor's Bay and one at Triple T Beach. Thus, Clark's Grebes made up 0.9% of all grebes encountered at LML, while intermediates made up 4.4-5.3%, depending on whether one intermediate, LMS 05, was included. This bird (LMS 05) with light gray coloration at the loral area, above, behind and below the eye could possibly have been a Western Grebe still in molt. All intermediates had rather greenish-yellow bills except for LMT 01, which had a bill of intermediate coloration. For three out of five birds, the black crown came down to the center of the eye, for one it ended at the upper eye, and for one at the lower eye. The lores were either white or partially light gray (Table 2). In spite of their greenish bills and bare loral skin lines, which would indicate Western Grebes, two of the intermediates appeared to have more orange-yellow bare eye rings, and even in LMS 05, the eye ring appeared more orange. Eichhorst and Parkin did not provide information on the color of the eye ring, but they did state that Clark's Grebes have a more orange-yellow and Western Grebes a more greenish-yellow bare line between the mandible and the eye.[4] It is perhaps reasonable that this criterion is also valid for the eye ring. In 37 of my Western Grebe photographs where the color of the eye ring could be identified, only one had a more orange color while all others were greenish yellow.

*BPL:* At BPL, I observed a total of 168 grebes at locations ranging from north of old Highway 2 to 6 km south along the lake. However, only 80 grebes came close enough for identification. One Clark's Grebe (BPL 01) and one intermediate with an orange yellow lower mandible and its crown coming down to reach the lower eye were recorded. Thus, Clark's Grebes and intermediates each represented about 1.2% of the grebes identified.

*PL:* In the northern part of PL, I counted a total of 363 grebes. Two of the 363 (0.6%) were likely Clark's Grebes. Nine individuals (2.5%) were clearly intermediate in coloration. Five of them had orange and two had green bills. The remaining two were more greenish in the upper, but clearly orange in the lower mandible. All had white feathers below the eyes, but their lore color was white (three individuals), light gray (four individuals), or even dark gray (two individuals). The black crown intersected the center of the eye in five cases (although this was only true for the left side in PEL 02) and reached the lower eye in three cases. In the remaining bird, the coloration behind the eye was too diffuse to clearly define the point of intersection. Two birds (PEL 11 and PEL 13) could still have been in molt and might have been Western Grebes.

*Delta Marsh:* Counts in June 2005 by T. Underwood and J. Rasmussen found close to 400 grebe nests but only one Clark's Grebe. A survey at eight sites in July 2005 by R. Bazin, J. Hopkins, L. Beaudoin, and D. Wrubelski recorded 160 nests, but had no record of Clark's Grebes (communication by H. den Haan). Both surveys were executed in the parts also visited by Eichhorst and Parkin in 1989.[4]

*Evidence for pair-bonding status of Clark's Grebes and intermediates:* At LML, most birds observed were in twos that appeared to be pairs. The Clark's Grebe observed at Sailor's Bay (LMS 01) was on its own, and it is unlikely that it had a partner waiting at one of the few active nests, because after foraging it remained on the open water surface. Intermediates were observed either alone or in groups, and only one of them was engaged in courtship, whereby it bob-preened with a Western Grebe. The intermediate from Triple T Beach (LMT 01) was not observed to have a partner during my study. The Clark's Grebe observed at BPL (BPL 01) was foraging alone, but it quickly moved out of view. The only intermediate observed was involved in ratchet-pointing and dip-shaking with two Western Grebes followed by rushing.

Both Clark's Grebes observed on PL were engaged in courtship. PEL 01 was first seen advertising without success, but later it was rushing in the company of a Western Grebe. PEL12 appeared to be more strongly tied as it was observed on two different days with the same partner, an intermediate (PEL 02). The pair was also engaged in displays that occur later in pair-bonding, namely arch-clucking and bob-preening, before moving into sparse vegetation. Two additional intermediates could have gained Western Grebes as partners: after weed dancing, PEL 10 was moving in the company of its partner in the direction of the breeding area, and PEL 06 was engaged in arch-clucking. The remaining intermediates were not yet paired (PEL 03, PEL 05, PEL 08) or were engaged in early pair-bonding displays (PEL 04, PEL 07, PEL 09) with Western Grebes. It is noteworthy that no Clark's Grebes or intermediates were observed directly inside the northern breeding area, but the greater distance of birds to the observer there made it difficult to identify individuals.

In summary, from all four Clark's Grebes, three were either unpaired or in the phase of pair-bond initiation while the fourth, a female, was paired to an intermediate. From 16 intermediates (including LMS05), seven appeared unpaired (five males, one female, one unsexed), four were engaged in early courtship displays (two males, two females), one male was paired to a Clark's Grebe, two males were paired to Western Grebes, and the pair-bond status of two birds (one male, one female) remained unclear.

## Discussion

The present study confirms the limited presence of Clark's Grebes in Canadian populations that could still be in the range of 1% or even less. This also seems to hold true for Delta Marsh, where an influx of Clark's Grebes was noted in the 1990s. Several scenarios could explain the decrease in numbers of Clark's Grebes: (1) the influx phenomenon was of limited duration, for instance depending on temporarily bad habitat conditions in the region of origin; (2) no additional influx occurred in the following years, and the Clark's Grebes present either did not (intra)breed successfully or their offspring emigrated to the south; (3) no additional influx occurred in successive years, and Clark's Grebes interbred with Western Grebes producing numerous intermediates; or (4) yearly numbers of Clark's Grebes in Canada are generally more fluctuating and are dependent on habitat conditions elsewhere.

In the first scenario, not too many intermediates should have resulted, and as a consequence of backcrosses with Western Grebes, these could be difficult to identify in the field. It does not seem likely that pairs with both partners being Clark's Grebes would all have bred unsuccessfully, or that all of their offspring emigrated, as stipulated in the second scenario. It would be more logical that both grebe species interbred as foreseen by the third scenario and more hybrids resulted that perhaps remain identifiable today. The fourth scenario could lead to rather low percentages of intermediates in the Canadian populations.

Genetically, the term "hybrid" denotes a first-generation product, in our case a cross between purebred Western and Clark's Grebe individuals. However, in practice, it is impossible to distinguish such individuals from later-generation hybrids.[3] In addition, the numbers of hybrids of any bird species recorded in the field may be biased by their detectability, which is a function of the plumage differences between the hybridizing species.[12] Both grebe species studied here look rather similar, and trying to include backcrosses (hybrids mating with purebreds of either species) in determining the frequency of intermediates further complicates the situation. In this study, I did not differentiate between different degrees of hybrids, and the color patterns of intermediates observed covered all possible stages intermediate between those of Western and Clark's Grebes. Depending on how the distinction between both purebred species and hybrids is defined, the results will change.

Historical data from Delta Marsh indicate that intermediates were extremely rare around 1980 and in the early 1990s. Breeding birds with intermediate plumage or bill color, presumably hybrids, represented less than 4%.[10] Unfortunately, the surveys at Delta Marsh in 2005 did not record intermediates so that we cannot assess the evolution of their numbers there. I found intermediates to represent about 3% of all grebes scrutinized, and this figure also applies to Pelican Lake, where the survey was fairly complete. Considering that the influx of Clark's Grebes in the 1990s reached Pelican Lake, this low percentage would speak in favor of the third scenario above.

Eichhorst and Parkin gave a fairly complete description of intermediates and stated that all of them had some orange on the lower mandible, mainly on the ventral surface near the base.[4] The color of the thin patch of bare skin between upper mandible and eye varied between dark green and orange. The description is generally confirmed here, except that not all birds classified as intermediate had yellow-orange visible on their lower mandible, which could simply be a consequence of poor light conditions. On most yellow-orange bills of intermediates, a more bright reddish color was identifiable mainly at the base of the lower mandible. This pattern was only observed in one bird classified as a purebred Western Grebe. Although the color of the bare skin surrounding the eye was not always clearly visible, I suspect that it follows the same pattern as the bare bridle line and is more orange in Clark's Grebes, more greenish in Western Grebes, and variable in intermediates.

With respect to indications of assortative mating, I found that all male Clark's Grebes seemed to be unpaired. Females could be better off, as the only female found was paired to an intermediate, but it might be premature to judge from just this one example. More intermediate males than females appeared unpaired; however, the total sample contained more males than females. To some extent, intermediates seemed to prefer purebred partners, which could be a sign for imprinting to play an important role in partner selection. In addition, no Clark's Grebes or intermediates were observed directly inside the northern breeding area at Pelican Lake. The findings basically confirm that the rare Clark's Grebes and the intermediates have difficulties obtaining a mate and that in Manitoba, birds with intermediate plumage are especially frequent in late-season courting groups.[8, 10]

To conclude, it would be desirable to execute regular checks of the occurrence of Clark's Grebes to find out to what extent their presence in prairie Canada could be more permanent or more cyclic, perhaps depending on habitat conditions farther south. It should also be investigated to what extent the rarer Clark's Grebes interbreed successfully or simply migrate to other places so that they disappear from Canadian populations later in the season or/and in successive years. Surveys should look out for intermediates between both species of grebes and should analyze to what extent they are able to pair early in the season and identify the "species" of their partners. Such data would provide useful information about the role of imprinting on purebred parents in preventing the offspring from pairing with hybrids. Such regular work would also contribute to better indications about the fitness of hybrids and their descendants.

## Acknowledgments

I thank G. Laroche and A. Smith for assistance during field work and H. den Haan for supplying me with the data of the 2005 surveys at Delta Marsh. Many thanks also to J. J. Vlug, A. Smith, and my wife Maria for commenting on an earlier draft, and to the reviewers of *Blue Jay*, who did a great job.

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Table 1. List of observed Clark's Grebes and grebes with intermediate characteristics. The first three letters in the numbering indicate the location of the sighting; BPL = Buffalo Pound Lake, LMS = Sailor's Bay at Last Mountain Lake, LMT = Triple T Beach at Last Mountain Lake, PEL: Pelican Lake. Sex: M = male, F = female. Abbreviations used for colors: B = black, DG = dark gray, GG = intermediate gray, G = greenish yellow, LG = light gray, O = orange yellow, W = white. Crown intersection: U = at upper eye, C = at the center of the eye, L = at lower eye, N = no intersection. Species: CG = Clark's Grebe, (CG) = possibly a Clark's Grebe, I = intermediate and possible hybrid, (WG) = possibly a Western Grebe

| Number | Sex | Bill color | Lore color | Above eye color | Behind eye color | Below eye color | Crown intersection | Bridle line | Eye ring | Species |
|---|---|---|---|---|---|---|---|---|---|---|
| **BPL 01** | M | O | W | W | W | W | N |  | O | CG |
| **BPL 02** | F | O* | LG | B | B | W | L |  |  | I |
| **LMS 01** | M | O | W | W | W | W | N |  | O | CG |
| **LMS 02** | F | G | LG* | B | LG | W* | C | G | O° | I |
| **LMS 03** | M | G | W* | B | W* | W* | C* |  |  | I |
| **LMS 04** |  | G | W | B | W* | W* | U |  |  | I |
| **LMS 05** | F | G | LG* | B | LG* | LG* | N | G | O | (WG) |
| **LMS 06** | M | G | LG* | B | DG | W | L | G | O | I |
| **LMT 01** |  | G* | W | B | LG | W | C |  |  | I |
| **PEL 01** | M | O | W | W* | W | W | N |  |  | (CG) |
| **PEL 02** | M | O* | LG | DG | DG | W | C/L* | G | G | I |
| **PEL 03** | M | O* | W* | B | LG | W | L* |  |  | I |
| **PEL 04** | M | O | LG | B | DG | W | C |  | O | I |
| **PEL 05** | M | O | LG | B | B | W | L | O | O | I |
| **PEL 06** | M | O | DG | B | B | W | C |  |  | I |
| **PEL 07** | M | O | DG | B | B | W | C |  |  | I |
| **PEL 08** |  | O* | LG | B | DG | W | L |  | O° | I |
| **PEL 09** | F | G | W | B | W | W | C | G | G | I |
| **PEL 10** | M | G | W | B | LG* | W | U* |  |  | I |
| **PEL 11** | F | G | LG* | B | LG* | LG* | * | G | G | (WG) |
| **PEL 12** | F | O | W | W* | W | W | N |  | O | (CG) |
| **PEL 13** | F | G | LG | LG | LG | LG* | N |  |  | (WG) |

* see Table 2 for additional remarks ° color identification not unequivocal

Table 2. Summary of characteristics of Clark's Grebes and intermediates recorded in Table 1.

| Number | Remarks regarding characteristics |
|---|---|
| **BPL 02** | Upper mandible more greenish |
| **LMS 02** | Thin light gray line directly above beak, then white and again dark gray in upper lore; more blurred white below eye |
| **LMS 03** | White directly above beak, but central and upper lore gray; white behind and washy white below eye, but both areas separated by gray line that intersects central eye |
| **LMS 04** | Partially diffuse gray behind eye and mostly washy white below eye |
| **LMS 05** | All light gray parts are washy, even washy light gray above central upper mandible |
| **LMS 06** | Washy light gray to white at lore region |
| **LMT 01** | Very light bill color, more intermediate |
| **PEL 01** | Black crown reaches down nearly touching the eye |
| **PEL 02** | Upper mandible greenish, but lower mandible orange; crown comes down to central eye on left side of face, but reaches farther down on right |
| **PEL 03** | Orange of beak not very bright; washy light gray around bridle line; light gray reaches lower eye |
| **PEL 08** | Lower mandible orange, but upper mandible greenish except for lower rim that is orange |
| **PEL 10** | Whitish patch behind eye leaves room for interpretation of where the crown intersects the eye |
| **PEL 11** | In lore region, behind and below eye diffuse light gray with small white spot at lore and behind eye; intersection of crown therefore difficult to define |
| **PEL 12** | Diffuse light grayish spot above eye |
| **PEL 13** | Partially washy white below eye |

## TWO PLUS ONE

In the quiet dusk of springtime,
strolling past a row of maples
on our old deserted farmyard,
I disturbed a rough grouse feeding
mid the weed stalks at a field's edge;
saw her act with greatest caution.
Craning out her neck she eyed me,
crest raised high and wings aquiver—
all alerted were her senses.
I, in turn, stopped short my ramble,
stood there while she looked
and listened,
paused there long and so outlasted
her instinctive hesitation
to resume her own meal-taking.
All the while a brownish rabbit,
crouching nearby in the open,
gave no heed to grouse or human,
just reposed there still and stone-like,
twitching neither ears nor whiskers;
sat on feet yet white and furry,
last to molt from a cold winter,
hiding them from all onlookers.
Such was his instinctive knowledge
that he gave no thought to fleeing,
immobility his byword.
So I stole away and left them,
feeding grouse and stolid rabbit,
in the quiet dusk of springtime.

-Victor C. Friesen

# SUMMARY OF NORTHERN SAW-WHET OWL BANDING – 2008

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This report summarizes the first full year of operation of a new Northern Saw-whet Owl (NSWO) banding station. Mist nets were set up periodically throughout 2008 as weather conditions and circumstances permitted with the objective of determining the presence of owls. During the spring banding season, two 12 m long nets (38-mm mesh) were used. During the autumn season, one 18-m net (32-mm mesh) was added, and on 15 September, a 12-m net (60-mm mesh) was added. An audiolure recording of the male NSWO call was broadcast at the netting site when nets were open. Netting began typically 1 hour after sunset and continued most evenings until midnight as circumstances permitted. During heavy flights, the nets were kept open later. The station was closed during rainy or windy weather.

In total, 289 NSWOs were captured in the mist nets in 2008, 29 during the spring season and 260 in the fall (Table 1). This total includes two recaptures of birds banded at other

*Table 1: Net capture effort for Northern Saw-whet Owls at the Nisbet Forest Banding Station in 2008. One net hour is defined as one 12 × 2-m mist net operated for 1 h.*

| Month | Days Open | Net-Hours | NSWOs Captured |
|---|---|---|---|
| January | 3 | 24 | 0 |
| February | 0 | 0 | 0 |
| March | 11 | 63 | 3 |
| April | 14 | 111 | 26 |
| May | 1 | 2 | 0 |
| June | 0 | 0 | 0 |
| July | 2 | 17.5 | 0 |
| August | 11 | 96.25 | 3 |
| September | 28 | 504.25 | 157 |
| October | 21 | 454.5 | 100 |
| November | 0 | 0 | 0 |
| December | 0 | 0 | 0 |
| **TOTAL** | 91 | 1272.5 | 289 |

*Table 2: Northern Saw-whet Owl captures by age and sex (Project Owlnet) in 2008.*

| Season | Age (%) <1 Year | Age (%) >1 Year | Male (%) | Female (%) | Unknown (%) |
|---|---|---|---|---|---|
| March – April | 48.3 | 51.7 | 10.3 | 86.2 | 3.4 |
| August – October | 56.5 | 43.5 | 12.3 | 67.3 | 20.4 |

stations, and three same-station recaptures. It does not include same-season recaptures of any kind. Age and sex-specific data are summarized in Table 2.

## Spring Banding

Attempts at capturing NSWOs during spring migration have been relatively unproductive through much of western Canada, and few banding stations operate during this period. We set up mist nets periodically during the winter and into the spring as weather conditions permitted to determine the extent of NSWO overwintering. Our first NSWO was captured on 14 March, and the last on 19 April. Half of these birds were captured on 7 to 9 April, suggesting a relatively narrow window of spring flight. However, the results indicate that spring banding is feasible at this station.

## Autumn Banding

The first bird captured after the breeding season was an after hatching year (AHY) female in full molt. This bird was captured on 13 August and was quite possibly a local bird. Two more NSWO were captured on 27 August, both hatching year (HY) birds and both bearing remnants of juvenile plumage. The first day on which we began to catch NSWOs in significant numbers was 7 September, and 23 October was the last date on which we caught owls in any number (3). The last owl was captured on 28 October.

Based on 2008 results, it appears the spring banding season at this

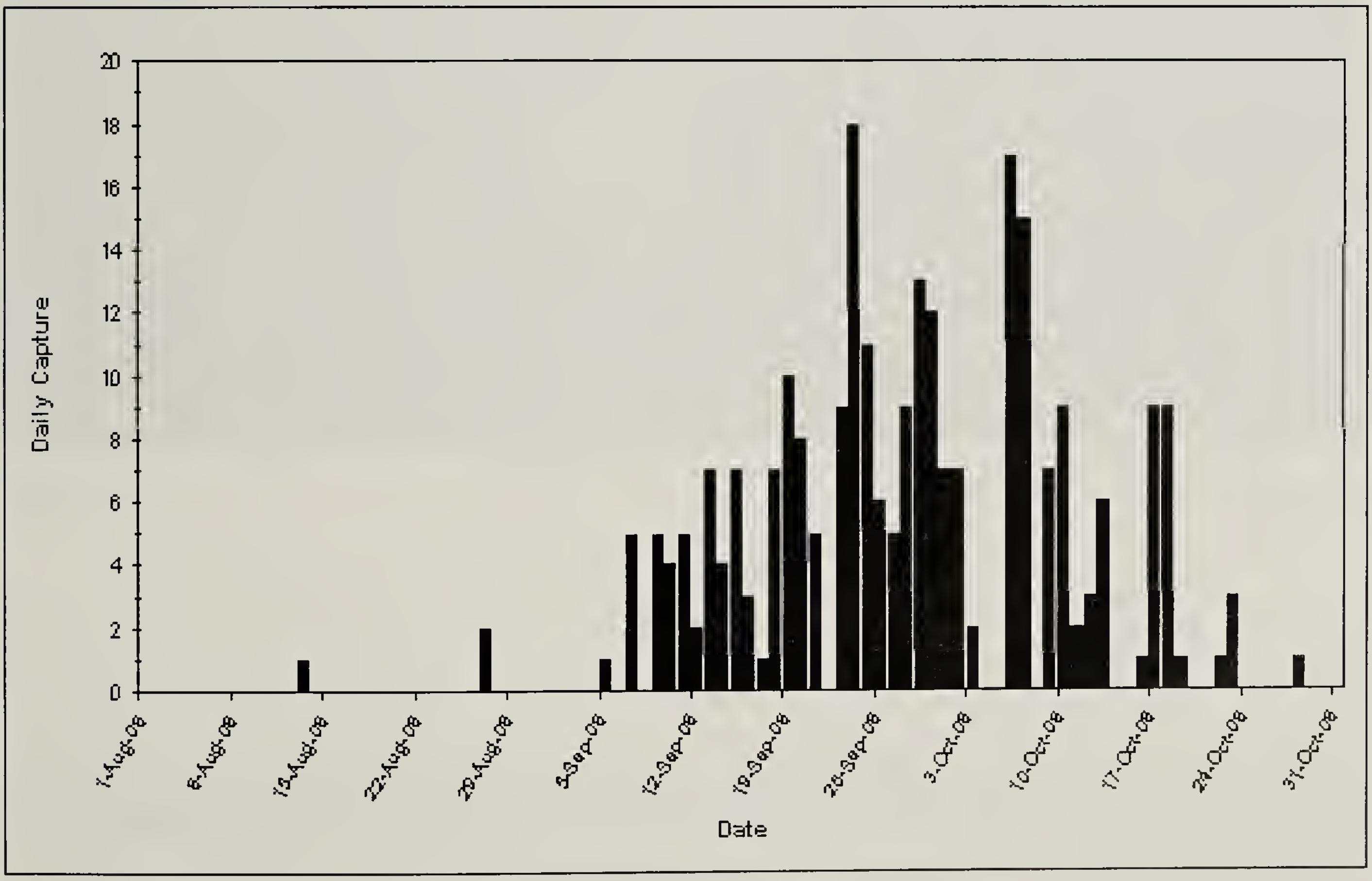

*Figure 1: Northern Saw-whet Owls captured during autumn 2008*

station should run from 15 March through 20 April and the autumn season from 5 September to 25 October (Fig. 1). Of course, this does not preclude the possibility of catching NSWO during any season at this location as weather conditions and circumstances permit.

### Recaptures from the Nisbet Forest Station

14 March 2008: recaptured #0924-47323, an AHY male banded on 27 September 2007

12 September 2008: recaptured #0924-53908, an SY female banded on 25 March 2008

30 September 2008: recaptured #0924-47323 again

### Recaptures from other Stations

27 September 2008: #0894-62091, banded in Bigfork Minnesota on 19 October 2006

6 October 2008: #0924-42865, banded in Edenwold, SK, on 28 September 2008

### Incidentals

During the fall banding season we captured four Boreal Owls and three Long-eared Owls in the nets. After the NSWO season, we continued the mist-net operation with a BOOW audiolure and captured seven additional Boreal Owls by the end of November.

*Northern Saw-whet Owl* *H. Fisher*

* * *

*The sun, with all those planets revolving around it and dependent on it, can still ripen a bunch of grapes as if it had nothing else in the universe to do.*
*– Galileo*

# SIX YEARS OF TURKEY VULTURE WING-TAGGING

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Since 2003, we have fitted 347 nestling Turkey Vultures with patagial (wing) tags (Table 1). The subsequent locations of sightings of wing-tags, often substantiated by photographs, provide intriguing information. Two were recorded at the Maracaibo Zoo in Venezuela, 5658 and 5696 km from the nest of origin. The first had been photographed at the zoo at 2 years of age on 8 November 2005; the zoo location was mapped in Figure 1 of Houston et al.[2] On 14 November 2008, a second vulture reached the same zoo, 3 months after tagging, when it was about 5 months old. These two are each shown with an asterisk in Table 1.

Four North American recoveries of dead vultures (one each at 3 years and 2 years and two at 1 year, all of them tagged in 2005;) and 25 North American sightings of 18 live vultures occurred 1 to 5 years after tagging (Table 1). Six vultures were sighted outside of Saskatchewan: two in Alberta, one in Manitoba, and one each in Montana, North Dakota, and South Dakota (Fig. 1). The vulture sighted in Montana at 2 years also became the fifth double sighting when it returned to Saskatchewan, only 36 km from its nest of origin, at 3 years.

The remaining four multiple sightings were reported only within

*Table 1: Numbers of nestling Turkey Vultures (n = 24), >1 year or >4000 km, tagged each year, with numbers encountered in subsequent years. To calculate % nestlings encountered, each vulture was counted only once.*

| Year | # nests | # tagged | >4000 km <1 yr | 1 yr | 2 yr | 3 yr | 4 yr | 5 yr | Total # encountered | Total # individuals | % individuals |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2003 | 9 | 14 | | 1 | 1* | 1 | 1 | $2^{+}$ | 6 | 4 | 29 |
| 2004 | 17 | 30 | | 2 | 1 | 1 | 4 | | 8 | 5 | 17 |
| 2005 | 29 | 43 | | 3 | 2 | 3 | | | 8 | 7 | 16 |
| 2006 | 46 | 84 | | 4 | 2 | | | | 6 | 6 | 7 |
| 2007 | 43 | 78 | | 1 | | | | | 1 | 1 | 1 |
| 2008 | 56 | 98 | 1* | | | | | | 1 | 1 | 1 |
| TOTAL | 200 | 347 | 1 | 11 | 6 | 5 | 5 | 2 | 30 | 24 | 7 |

* = in Venezuela

$^{+}$ = two sightings, nearly 3 months apart, of second bird at 5 yr

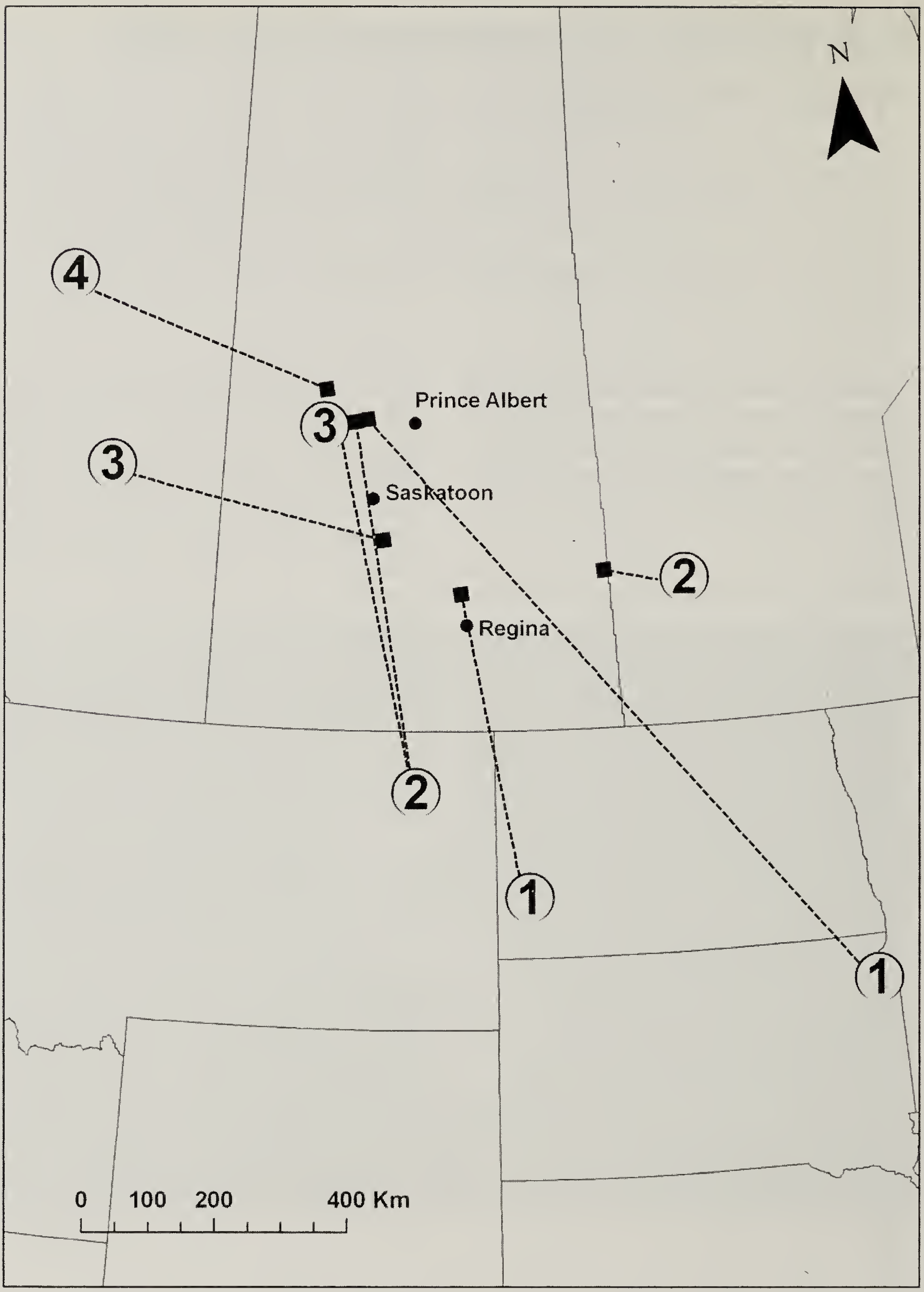

*Figure 1. Vulture wing tags (6) sighted outside Saskatchewan, but omitting two sighted in Venezuela. Nest of origin is a square; the number within the circle indicates the number of years elapsed before the sighting at that point. The dotted line is diagrammatic and does not represent the route of travel during the elapsed year(s). The vulture sighted in Montana at 2 years had returned to within 36 km of its nest of origin at 3 years.* *Kathy M. Meeres*

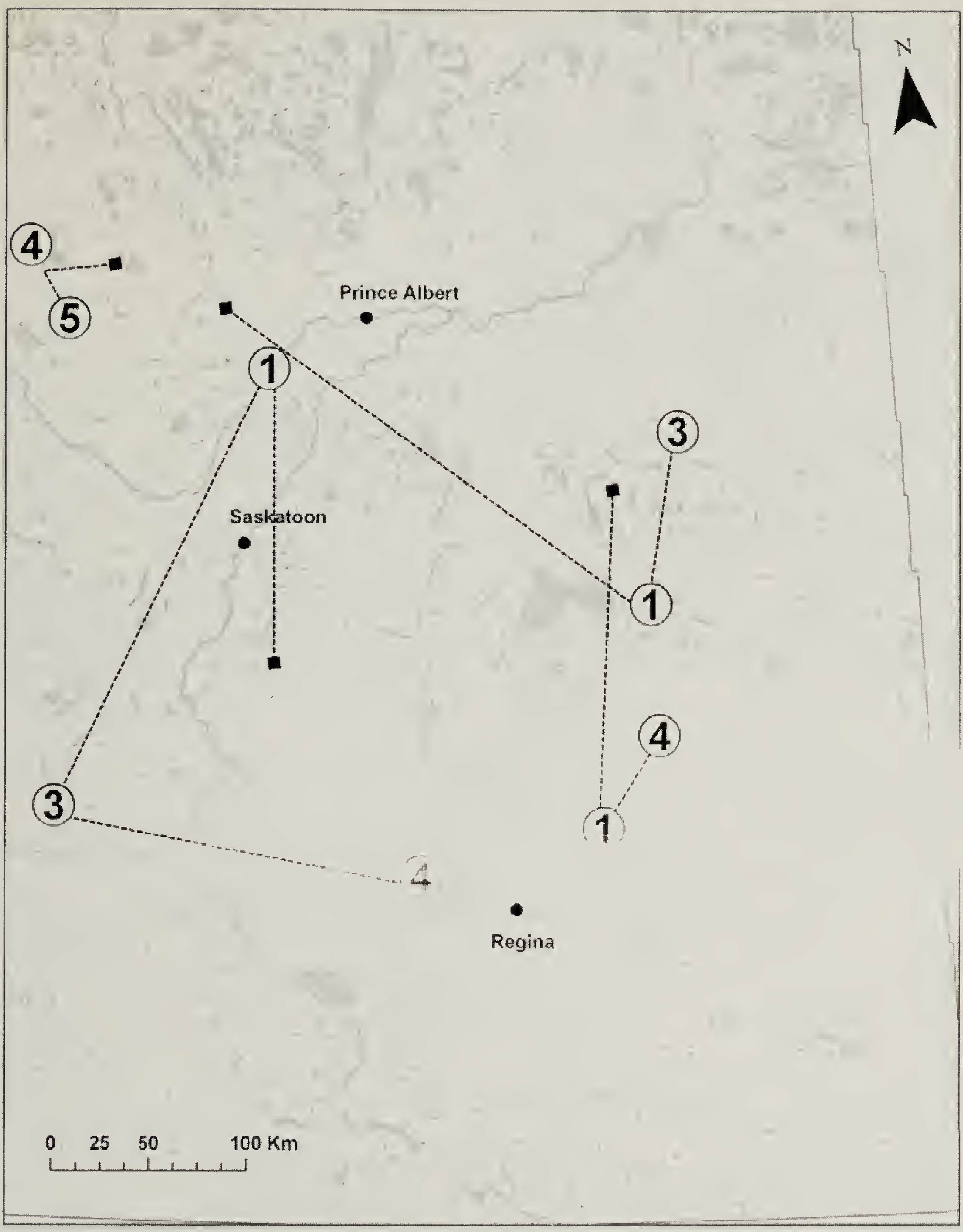

*Figure 2. Vulture wing-tags (4) sighted >1 year, more than once.*

*Kathy M. Meeres.*

Saskatchewan. Of these, three were encountered two times: from a nest at Bapaume to Cater at 4 years and Robinhood at 5 years; from Mont Nebo to Fishing Lake at 1 year and Chelan at 3 years; and from Archerwill to Fort Qu'Appelle at 1 year and Ituna at 4 years. The fourth was encountered three times, from a nest at Hanley north to Shellbrook at 1 year, south to Kyle at 3 years, and east to Buffalo Pound Lake at 4 years (Fig. 2). On 12 occasions, 12 different vultures were encountered once each at 5, 4, and 3 years; three at 2 years, and six at 1 year (Fig. 3).

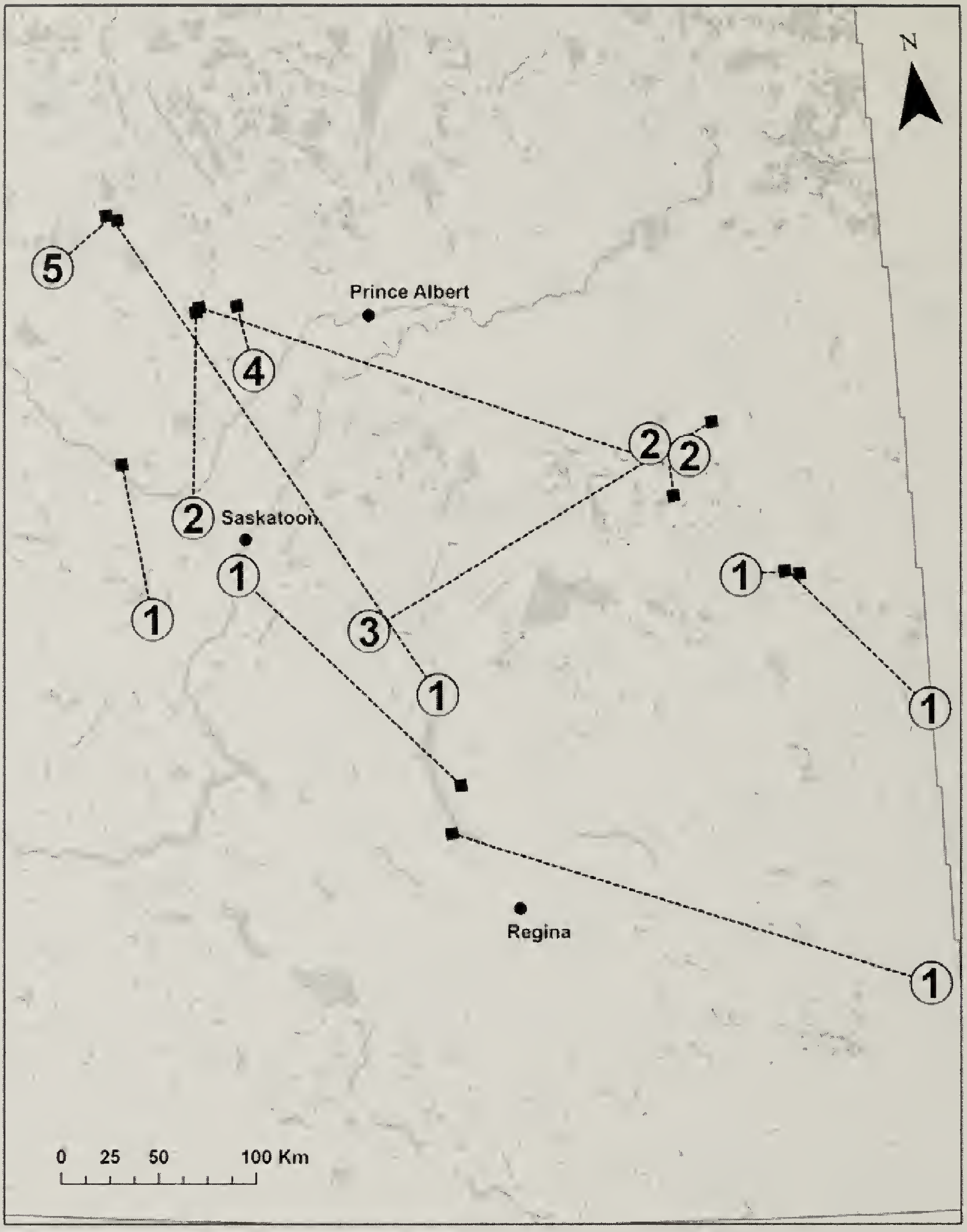

*Figure 3. Vulture wing-tags (12) sighted >1 year, only once.*

*Kathy M. Meeres.*

The percentage of encounters increased with years elapsed since tagging (Table 1), which is opposite to other studies of marked birds, where sighting numbers typically are halved each consecutive year after marking (e.g., Great Horned Owls[1]). To explain sightings increasing in frequency with age, one might postulate that many vultures, 1 and 2 years after tagging, do not return to or near Saskatchewan, where the public is more likely to be aware of vulture tagging and to whom to report. Tagged vultures sighted at 1 year were an average of 267 km from their nest of origin (n=12). This distance declined to 210 km (n=5) in the second year, 207 km (n=5) in the third year, 147 km (n=5) in the fourth year, and 37 km (n=3) in the fifth year. In Wisconsin, a 10-year (1983–1993) study of wing-tagged vultures showed that "if a fledgling eventually returns ... it typically makes its reappearance during its third year" (Michael J. Mossman, pers. comm.).

Readers should be on the watch for tagged vultures, as tagged examples of these long-lived birds increase in numbers each year. We will watch closely in 2009 and 2010 for evidence that this species can begin breeding as early as 6 or 7 years; the only breeding Turkey Vulture of known age in North America to date was 11 years old.[3] That vulture, LeftGreen-11, probably hatched in late May 1986, was tagged in July, and fledged in August 1986. It did not return until 15 April 1989, just short of 3 years of age. On 2 June 1997, this vulture was an adult on two eggs in a different outcrop nest, only 1.2 km from its natal site, at or near 11 years of age (Michael J. Mossman, pers. comm.)

**Acknowledgements**

We thank Kathy M. Meeres for preparing all three maps and Michael J. Mossman for additional information concerning the breeding vulture of known age.

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* * *

SPRING

April has its way
does what it will with spring—
blustery cold its wind
a sullen overcast its skies
and dabs of dirty crusted snow
patched on a greasy field

Two sharp-tailed grouse
in buffs of browns—crested, sedate, alert—
step mincingly about
the hummocky stubble plowed last fall
toe the mud and snow and bleached and matted straw
for food, here better fare
than winter's sparse lean peckings

Two meadowlarks
arrivals from the south
drop in, all unannounced
at once assume they're fellow grouse
or quail-like cousins
stride and weave among the larger birds
their tails a-flick, their knowing beaks
poking likely spots for seeds or bugs
their striking yellow breasts a sign of spring
a sudden warm world's welcome to the season

-Victor C. Friesen

# 36TH ANNUAL SASKATCHEWAN CHRISTMAS MAMMAL COUNT - 2008

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Eighty-six of the 90 submitted Christmas Bird Counts also included Christmas Mammal Counts. Except for 2006, when 85 counts were conducted, this is the fewest since 1996 when 82 were done. The total number of mammals seen or heard (3,563), and total number of species recorded (35) were about normal for the last 10 years. Indian Head had the most species seen or heard with 13; Togo was the runner-up with 10.

No new species were added to the all-time count list. However, there were some noteworthy records. American Bison were seen for the second consecutive year at Grasslands National Park. The species was first recorded during the Christmas Mammal Count last year, with records from the park and at Mayview near Prince Albert. Single American Marten recorded during the Prince Albert National Park and Togo counts were only the fourth and fifth in the history of the count. An all-time high count for River Otters was set when 10 were seen during the Prince Albert National Park count. The Fox Squirrel continues to expand its range northward, with one recorded at Kutawagan Lake. Finally, Mountain Lion tracks at Indian Head were of note.

For information on participants, weather, coverage, and location of Christmas Mammal Counts see the Christmas Bird Count summary in this issue. Note that mammal counts were conducted at Briercrest and Hepburn, but as no mammals were actually detected, these counts are not included in Table 1.

**Explanation of entries in Table 1.**

The number of mammals actually seen or heard on the count day is treated separately from those recorded by other means, or those recorded during the count period (14 December to 5 January) but not on the count day. Numbers of individuals seen or heard are given in Table 1 and are tallied in the first line of totals at the bottom of the table. The number of species they represent is given in the second line.

For species detected only by tracks or by other means, or that were seen or heard only in the count period but not on the count day, no numbers of individuals are given in Table 1. Species detected only by tracks are indicated by 't' in the table; those detected only by other means are indicated as follows: dead animals 'm', more clearly identifiable chewing or digging 'd', dens or lodges 'L', and by smell 's.' Species detected by any means during the count period, but not on the count day, are indicated by 'c' in the table. These additional species are tallied in lines 3, 4, and 5 at the bottom of the table. If a mammal is reported as a member of a species group (e.g., mouse species, deer species), it is counted as a species only if no other species in this group has been definitely recorded. The columns at the end of the table give totals for each species.

Table 1-1. 36th Saskatchewan Christmas Mammal Count-2008.

| Map number | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Archerwill, 23 Dec 2008 | Armit, 31 Dec 2008 | Avonlea, 28 Dec 2008 | Bangor, | Biggar, 27 Dec 2008 | Birch Hills, 16 Dec 2008 | Broadview, 26 Dec 2008 | Cabri, 24 Dec 2008 | Candle Lake, 31 Dec 2008 | Christopher Lake, 4 Jan 2009 | Churchbridge, 3 Jan 2009 | Clark's Crossing, 20 Dec 2008 | Codette Lake, 1 Jan 2009 | Coronach, 5 Jan 2009 |
| Short-tailed Shrew |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Masked Shrew |  |  |  |  | 1 |  |  |  |  |  |  |  |  |  |
| Shrew Species |  |  |  |  |  | t | t |  |  |  |  |  |  |  |
| Eastern Cottontail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Nuttall's Cottontail |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  |
| Snowshoe Hare |  | t |  |  | 1 | t | t |  | t | t |  | 1 | t |  |
| White-tailed Jack Rabbit | t |  |  | 3 |  | t | t | t |  |  |  |  |  |  |
| Richardson's Ground Squirrel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Eastern Grey Squirrel |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |
| Eastern Fox Squirrel |  |  | c |  |  |  |  |  |  |  |  |  |  |  |
| American Red Squirrel | 6 | 1 |  | 2 | 1 | 5 | 1 |  | 9 | 2 |  | 1 | 10 |  |
| Northern Flying-Squirrel |  |  |  |  |  |  |  |  |  | t |  |  |  |  |
| American Beaver |  |  |  |  |  |  |  |  |  |  | L |  |  |  |
| Deer Mouse |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Muskrat |  |  |  |  | L |  |  |  |  |  | L |  |  |  |
| Gapper's Red-backed Vole |  |  |  |  |  |  |  |  | 1 |  |  |  |  |  |
| Meadow Vole |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Vole Species |  |  |  |  | t |  | t |  |  |  |  |  |  |  |
| House Mouse |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Mouse Species |  |  |  |  |  | t | t |  | t | t | t | 1 |  |  |
| American Porcupine |  |  |  |  | 3 | t | t |  |  |  |  |  |  |  |
| Coyote | 1 | t | 2 | 6 | 5 | 3 | 5 | 1 | 1 |  | t | 2 | 1 | 1 |
| Wolf | 2 | t |  |  |  |  |  |  | t |  |  |  |  |  |
| Red Fox | 1 |  |  |  |  | t | 1 | 1 |  | t |  | 1 |  |  |
| Raccoon |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| American Marten |  |  |  |  |  |  |  |  | t |  |  |  |  |  |
| Fisher |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ermine | 1 | t |  |  |  | t | t |  |  |  |  |  |  |  |
| Long-tailed Weasel |  |  |  |  |  | t | t |  |  |  | t |  | t |  |
| Least Weasel |  |  |  |  |  | t |  |  | t |  |  |  |  |  |
| Weasel Species |  |  |  |  | t |  |  |  |  |  |  |  |  |  |
| American Mink | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| American Badger |  |  |  |  | d |  |  |  |  |  |  |  |  | d |
| Striped Skunk | 1 |  |  | 1 |  |  |  |  |  |  |  |  |  |  |
| River Otter |  |  |  |  |  |  |  |  | t |  |  |  | 5 |  |
| Mountain Lion |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lynx |  | t |  |  |  |  |  |  | t |  |  |  |  |  |
| Mule Deer |  |  |  |  | 43 |  |  | 6 |  |  |  | 3 |  | 8 |
| White-tailed Deer | 11 | 9 | 13 | 9 | 56 | 1 | 7 |  | 66 | t | 7 | 6 | t | 10 |
| Deer Species |  |  |  |  |  |  |  | t |  |  |  | t |  |  |
| Moose | 5 | t |  |  | t |  | t |  | t |  | c |  |  |  |
| Elk |  | t |  |  |  |  |  |  | 3 |  |  |  | t |  |
| Pronghorn |  |  |  |  |  |  |  | 50 |  |  |  |  |  |  |
| American Bison |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Totals seen/heard on count day | 29 | 10 | 16 | 21 | 110 | 9 | 15 | 58 | 80 | 2 | 7 | 15 | 16 | 19 |
| Total species seen/heard | 9 | 2 | 2 | 5 | 7 | 3 | 5 | 4 | 5 | 1 | 1 | 7 | 3 | 3 |
| Total species recorded by tracks | 1 | 7 | 0 | 0 | 3 | 9 | 8 | 2 | 8 | 5 | 3 | 1 | 4 | 0 |
| Total species otherwise recorded | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 |
| Species recorded count period | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Total species count period and day | 10 | 9 | 3 | 5 | 12 | 12 | 13 | 5 | 13 | 6 | 7 | 7 | 7 | 4 |

Table 1-2. 36th Saskatchewan Christmas Mammal Count-2008.

| Map number | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Craven, 20 Dec 2008 | Creighton, 2 Jan 2009 | Crooked Lake, 23 Dec 2008 | Crooked River, 27 Dec 2008 | Cypress Hills P.P., 28 Dec 2008 | Dorintosh, 5 Jan 2009 | Duck Lake, 22 Dec 2008 | Duval, 28 Dec 2008 | Eastend, 4 Jan 2009 | Endeavour, 16 Dec 2008 | Estevan, 4 Jan 2009 | Estuary North, 4 Jan 2009 | Fenton, 15 Dec 2008 | Fort Qu'Appelle, 18 Dec 2008 |
| Short-tailed Shrew |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Masked Shrew |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Shrew Species |  | t |  |  |  |  |  |  |  | 1 |  |  |  |  |
| Eastern Cottontail |  |  |  |  |  |  |  |  |  |  | 2 |  |  |  |
| Nuttall's Cottontail |  |  |  |  | t |  |  |  | 7 |  |  |  |  |  |
| Snowshoe Hare | t | t | t | 1 |  | t |  | t |  | t |  |  | t | 1 |
| White-tailed Jack Rabbit |  |  |  |  | t |  |  | t | 10 |  | t |  |  |  |
| Richardson's Ground Squirrel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Eastern Grey Squirrel | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Eastern Fox Squirrel | 1 |  |  |  |  |  |  |  |  |  | 3 |  |  | c |
| American Red Squirrel | 3 | 2 | 1 | 1 | 1 | t | 1 | 2 |  |  |  |  | 1 | 2 |
| Northern Flying-Squirrel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| American Beaver |  |  | L |  |  |  |  | L |  |  |  |  |  |  |
| Deer Mouse |  |  |  |  |  |  |  |  |  |  |  |  |  | c |
| Muskrat |  |  | L |  |  |  | L |  |  |  | L |  | t |  |
| Gapper's Red-backed Vole |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Meadow Vole |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Vole Species |  | t |  |  |  |  |  |  |  |  | t |  |  |  |
| House Mouse |  |  |  |  |  |  |  |  |  |  |  |  |  | c |
| Mouse Species |  |  |  |  |  |  |  | t |  |  |  |  | t |  |
| American Porcupine |  |  |  |  | c |  | 1 | 2 | 2 | 1 |  |  |  | c |
| Coyote |  | t | t | 1 | c | m |  | t | 3 | t | 1 | 1 | 1 | 3 |
| Wolf |  | t |  |  |  |  |  |  |  |  |  |  |  |  |
| Red Fox | t | t | t |  |  |  |  | 4 | t | t | 1 |  | t | c |
| Raccoon |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| American Marten |  | t |  |  |  |  |  |  |  |  |  |  |  |  |
| Fisher |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ermine |  |  |  |  |  |  |  | t |  |  |  |  | t |  |
| Long-tailed Weasel |  |  |  |  |  |  |  | t | 1 |  |  |  |  |  |
| Least Weasel |  |  |  |  |  |  |  |  |  |  |  |  | t |  |
| Weasel Species |  | t |  |  | t |  |  |  |  |  |  |  |  |  |
| American Mink |  |  | 1 |  |  |  |  |  |  |  |  |  |  | c |
| American Badger |  |  | d |  |  |  |  |  |  |  |  |  |  |  |
| Striped Skunk |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| River Otter |  | t |  |  |  | c |  |  |  |  |  |  |  |  |
| Mountain Lion |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lynx |  | t |  |  |  |  |  |  |  |  |  |  |  |  |
| Mule Deer | 9 |  |  |  | 40 |  |  |  | 246 | 2 | 7 | 8 |  | c |
| White-tailed Deer | 20 | t | t |  | 15 | 28 | 8 | 23 | 155 | 10 | 6 | 34 | t | 5 |
| Deer Species |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Moose |  | t |  | m | t | c |  | t | 6 | 3 |  |  |  |  |
| Elk |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Pronghorn |  |  |  |  |  |  |  |  | 2 |  |  |  |  |  |
| American Bison |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Totals seen/heard on count day | 36 | 2 | 2 | 3 | 56 | 28 | 10 | 31 | 432 | 17 | 20 | 43 | 2 | 11 |
| Total species seen/heard | 5 | 1 | 2 | 3 | 3 | 1 | 3 | 4 | 9 | 5 | 6 | 3 | 2 | 4 |
| Total species recorded by tracks | 2 | 12 | 4 | 0 | 4 | 2 | 0 | 7 | 1 | 3 | 2 | 0 | 7 | 0 |
| Total species otherwise recorded | 0 | 0 | 3 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Species recorded count period | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Total species count period and day | 7 | 13 | 9 | 4 | 9 | 6 | 4 | 12 | 10 | 8 | 9 | 3 | 9 | 11 |

Table 1-3. 36th Saskatchewan Christmas Mammal Count-2008.

| Map number | 31 | 32 | 33 | 35 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gardiner Dam, 15 Dec 2008 | Good Spirit Lake, 27 Dec 2008 | Grasslands, N.P., 24 Dec 2008 | Harris, 22 Dec 2008 | Imperial, 25 Dec 2008 | Indian Head, 27 Dec 2008 | Kelvington, 27 Dec 2008 | Kenaston, 30 Dec 2008 | Kenosee Lake, 29 Dec 2008 | Ketchen, 26 Dec 2008 | Kindersley North, 26 Dec 2008 | Kinistino, 31 Dec 2008 | Kinloch, 29 Dec 2008 | Kutawagan Lake, 27 Dec 2008 |
| Short-tailed Shrew | | | | | | | | | | | | | | |
| Masked Shrew | | | | | | | | | | | | | | |
| Shrew Species | | | | | | 1 | | | | | | | | |
| Eastern Cottontail | | | | | | | | | | | | | | |
| Nuttall's Cottontail | 3 | | 7 | | | | | | | | | | | |
| Snowshoe Hare | t | t | | | | 11 | | | | | t | | t | t |
| White-tailed Jack Rabbit | t | t | | t | t | 5 | | t | | | | | | t |
| Richardson's Ground Squirrel | | | | | | | | | | | | | | |
| Eastern Grey Squirrel | | | | | | | | | | | | | | |
| Eastern Fox Squirrel | | | | | | 6 | | | | | | | | 1 |
| American Red Squirrel | | 3 | | | | 12 | 2 | | 3 | 1 | | | 1 | |
| Northern Flying-Squirrel | | | | | | | | | | | | | | |
| American Beaver | | L | | | | 1 | | L | L | L | | | L | |
| Deer Mouse | | | | | | | | | | | | | | |
| Muskrat | | L | | | | | | t | L | L | | | L | |
| Gapper's Red-backed Vole | | | | | | 2 | | | | | | | | |
| Meadow Vole | | | | 1 | | | | | | | | | t | |
| Vole Species | t | | | | | | | | | | | | | |
| House Mouse | | | | | | | | | | | | | | |
| Mouse Species | | t | | | | | | | | | | t | | |
| American Porcupine | | t | | 3 | | t | | t | | | | | | |
| Coyote | 5 | 1 | 4 | 10 | t | 14 | t | 1 | | | 1 | 1 | t | 2 |
| Wolf | | | | | | | | | | | | | t | |
| Red Fox | t | t | | t | | 2 | | t | | | | 1 | t | |
| Raccoon | 1 | | | | | | | t | | | | | | |
| American Marten | | | | | | | | | | | | | | |
| Fisher | | | | | | | | | | | | | | |
| Ermine | | t | | | | | | t | | 1 | | | | |
| Long-tailed Weasel | | | | | | 1 | | | | | | | | |
| Least Weasel | | | | | | | | t | | | | | | |
| Weasel Species | | t | | | | | | | | | | | t | |
| American Mink | | t | | | | | | | | | | | t | |
| American Badger | | | | | | 1 | | | | | | | | |
| Striped Skunk | s | | | | | | | | | | | | | |
| River Otter | | | | | | | | | | | | | | |
| Mountain Lion | | | | | | t | | | | | | | | |
| Lynx | | | | | | | | | | | | | | |
| Mule Deer | 14 | | 164 | 75 | | 18 | 6 | t | | | 13 | | | 13 |
| White-tailed Deer | 47 | 7 | 38 | 17 | 18 | 42 | 6 | 14 | 9 | 3 | 2 | 4 | 8 | 4 |
| Deer Species | | | | | | | | | | | | | | |
| Moose | | t | | | | | c | t | 1 | | | | t | |
| Elk | | t | | | | | | | | t | | 2 | 132 | |
| Pronghorn | | | | | | | | | | | 60 | | | |
| American Bison | | | 28 | | | | | | | | | | | |
| Totals seen/heard on count day | 70 | 11 | 241 | 106 | 18 | 116 | 14 | 15 | 13 | 5 | 76 | 8 | 141 | 20 |
| Total species seen/heard | 5 | 3 | 5 | 5 | 1 | 13 | 3 | 2 | 3 | 3 | 4 | 4 | 3 | 4 |
| Total species recorded by tracks | 4 | 9 | 0 | 2 | 2 | 2 | 1 | 9 | 0 | 1 | 1 | 1 | 8 | 2 |
| Total species otherwise recorded | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 2 | 0 |
| Species recorded count period | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total species count period and day | 10 | 14 | 5 | 7 | 3 | 15 | 5 | 12 | 5 | 6 | 5 | 5 | 13 | 6 |

Table 1-4. 36th Saskatchewan Christmas Mammal Count-2008.

| Map number | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Kyle, 30 Dec 2008 | La Ronge, 26 Dec 2008 | Last Mountain Lake, 3 Jan 2009 | Leader North, 1 Jan 2009 | Love-Torch River, 21 Dec 2008 | Luseland, 5 Jan 2009 | MacDowall, 23 Dec 2008 | Matador, 28 Dec 2008 | Mayview, 30 Dec 2008 | Meadow Lake, 26 Dec 2008 | Moose Mountain, 2 Jan 2009 | Morse, 30 Dec 2008 | Nipawin, 2 Jan 2009 | Nisbet Forest West, 28 Dec 2008 |
| Short-tailed Shrew | | | | | | | | | | | | | t | |
| Masked Shrew | | | | | | | | | | | | | | |
| Shrew Species | | | | | | | | | | | | | t | |
| Eastern Cottontail | | | | | | | | | | | | | | |
| Nuttall's Cottontail | 1 | | | 1 | | | | | | | | t | | |
| Snowshoe Hare | | t | | | t | | t | | | t | | | 10 | 1 |
| White-tailed Jack Rabbit | c | | | 2 | 1 | t | | | | | | 8 | | |
| Richardson's Ground Squirrel | | | | | | | | | | | | | | |
| Eastern Grey Squirrel | | | | | | | | | | | | | | |
| Eastern Fox Squirrel | | | 1 | | | | | | | | | | | |
| American Red Squirrel | | 1 | | | 4 | | | | 1 | 5 | 4 | | 2 | 7 |
| Northern Flying-Squirrel | | c | | | | | | | | | | | 2 | |
| American Beaver | | L | L | | | | | | | | | | | |
| Deer Mouse | | | | | | | | | | | | | t | |
| Muskrat | | L | L | | | | L | | | | | | | |
| Gapper's Red-backed Vole | | | | | | | | | | | | | | |
| Meadow Vole | | | | | | | | | | | | | | |
| Vole Species | | | | | | | | | | | | | | |
| House Mouse | | | | | | | | | | | | | | |
| Mouse Species | t | | | 2 | | | | | | t | | | | |
| American Porcupine | | | | 1 | | | | 1 | | 1 | | | | |
| Coyote | 5 | | | 4 | 1 | 5 | 3 | 6 | | 1 | | 8 | 2 | 1 |
| Wolf | | | | | | | | | | 1 | | | | |
| Red Fox | 1 | c | | | t | c | t | | | t | 1 | 2 | 1 | |
| Raccoon | | | | m | | | | | | | | | | |
| American Marten | | | | | | | | | | | | | | |
| Fisher | | | | | | | | | | | | | | |
| Ermine | | | | | | | | | | | | | | |
| Long-tailed Weasel | | | | | | | | | | | | | t | |
| Least Weasel | | | | | | | | | | | | | t | |
| Weasel Species | | | | | 1 | | | | | t | | | | |
| American Mink | | | | | | | | | | | | | | |
| American Badger | | | | | | | | | | | | d | | |
| Striped Skunk | | | | | 2 | | | | | | | | t | |
| River Otter | | t | | | c | | | | | | | | | |
| Mountain Lion | | | | | | | | | | | | | | |
| Lynx | | | | | | | | | | 1 | | | | |
| Mule Deer | 8 | | 36 | 20 | | 1 | 2 | 135 | | | | 44 | | |
| White-tailed Deer | 1 | | 44 | 15 | 23 | c | | 6 | | 15 | | 106 | 10 | c |
| Deer Species | | | | | | | | | | | | | | |
| Moose | 1 | | | 2 | c | 4 | | | | 1 | | 5 | t | |
| Elk | | | | | c | | | | | | | | | |
| Pronghorn | 65 | | | | | | | 23 | | | | | | |
| American Bison | | | | | | | | | | | | | | |
| Totals seen/heard on count day | 82 | 1 | 81 | 47 | 32 | 10 | 5 | 171 | 1 | 25 | 5 | 173 | 27 | 9 |
| Total species seen/heard | 7 | 1 | 3 | 8 | 6 | 3 | 2 | 5 | 1 | 7 | 2 | 6 | 6 | 3 |
| Total species recorded by tracks | 1 | 2 | 0 | 0 | 2 | 1 | 2 | 0 | 0 | 4 | 0 | 1 | 6 | 0 |
| Total species otherwise recorded | 0 | 2 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Species recorded count period | 1 | 2 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total species count period and day | 9 | 7 | 5 | 9 | 11 | 6 | 5 | 5 | 1 | 11 | 2 | 8 | 12 | 4 |

Table 1-5. 36th Saskatchewan Christmas Mammal Count-2008.

| Map number | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Pierce Lake, 28 Dec 2008 | Pike Lake, 3 Jan 2009 | Prince Albert, 14 Dec 2008 | Prince Albert N.P., 19 Dec 2008 | Qu'Appelle, 30 Dec 2008 | Qu'Appelle Dam, 14 Dec 2008 | Raymore, 25 Dec 2008 | Regina, 26 Dec 2008 | Rouleau, 4 Jan 2008 | Round Lake, 26 Dec 2008 | Saltcoats, 27 Dec 2008 | Sk. Landing P.P., 21 Dec 2008 | Sk. River Forks, 17 Dec 2008 | Saskatoon, 26 Dec 2008 |
| Short-tailed Shrew |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Masked Shrew |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Shrew Species |  |  |  |  |  |  |  |  |  |  |  |  | t |  |
| Eastern Cottontail |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Nuttall's Cottontail |  |  |  |  |  | 2 |  |  |  |  |  | t |  |  |
| Snowshoe Hare |  | t | t | t |  | t | t | t | t |  | t |  | t | 4 |
| White-tailed Jack Rabbit |  | 1 | t |  |  |  |  | 15 | t |  | 1 | 1 |  | t |
| Richardson's Ground Squirrel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Eastern Grey Squirrel |  |  |  |  |  |  |  | 4 |  |  |  |  |  |  |
| Eastern Fox Squirrel |  |  |  |  |  |  | 2 | 12 |  |  |  |  |  |  |
| American Red Squirrel | 2 | 6 | 6 | 6 |  | 1 | 2 | 2 |  | 1 | 4 |  | 5 | 9 |
| Northern Flying-Squirrel |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| American Beaver | 1 |  | L |  |  |  |  |  |  |  |  |  |  | 1 |
| Deer Mouse |  | 1 |  |  |  |  | t | t |  |  |  |  |  | t |
| Muskrat |  |  | t |  |  |  |  |  |  |  |  |  |  |  |
| Gapper's Red-backed Vole |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Meadow Vole |  |  |  |  |  |  |  | t |  |  |  |  |  |  |
| Vole Species |  |  |  | t |  |  | t |  |  |  |  |  | t | t |
| House Mouse |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Mouse Species |  |  | t |  |  |  |  |  |  |  |  | t | t | t |
| American Porcupine |  |  |  |  | 1 |  |  |  |  |  |  |  |  | 2 |
| Coyote |  | 5 | t |  | 5 | 3 | t | 2 |  |  | 1 | 3 | 3 | 9 |
| Wolf |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  |
| Red Fox |  |  |  | 1 |  |  |  | 3 |  |  |  |  |  | t |
| Raccoon |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| American Marten |  |  |  | 1 |  |  |  |  |  |  |  |  | t |  |
| Fisher |  |  |  | t |  |  |  |  |  |  |  |  | t |  |
| Ermine |  |  |  |  |  |  | t |  |  |  |  |  | t |  |
| Long-tailed Weasel |  | t | t |  |  |  |  |  |  |  |  |  | t | 1 |
| Least Weasel |  |  |  |  |  |  |  |  |  |  |  |  | t | t |
| Weasel Species |  |  |  | t |  |  |  | t |  |  |  | t |  | t |
| American Mink | 2 |  | t |  |  |  |  |  |  | 1 |  |  |  |  |
| American Badger |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Striped Skunk |  |  |  |  | s |  |  |  |  |  |  |  |  |  |
| River Otter | 4 |  |  | 10 |  |  |  |  |  |  |  |  |  |  |
| Mountain Lion |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lynx |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Mule Deer |  | 1 |  |  |  | 23 |  |  |  |  |  | 32 | 7 | 24 |
| White-tailed Deer | 7 | 18 | 2 | 1 | 13 | 15 | 9 | 23 |  |  | t | 6 | t | 110 |
| Deer Species |  | t |  |  |  |  |  |  |  |  |  |  |  | t |
| Moose |  |  |  |  |  |  |  |  |  |  |  | c |  |  |
| Elk |  |  |  | 7 |  |  |  |  |  | 1 |  | 1 | t |  |
| Pronghorn |  |  |  |  |  |  |  |  |  |  |  | c |  |  |
| American Bison |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Totals seen/heard on count day | 16 | 32 | 8 | 27 | 19 | 44 | 13 | 61 | 0 | 3 | 6 | 43 | 15 | 160 |
| Total species seen/heard | 5 | 6 | 2 | 7 | 3 | 5 | 3 | 7 | 0 | 3 | 3 | 5 | 3 | 8 |
| Total species recorded by tracks | 0 | 3 | 7 | 4 | 0 | 1 | 5 | 4 | 2 | 0 | 2 | 3 | 10 | 5 |
| Total species otherwise recorded | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Species recorded count period | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| Total species count period and day | 5 | 8 | 10 | 11 | 4 | 6 | 8 | 11 | 2 | 3 | 5 | 10 | 13 | 13 |

Table 1-6. 36th Saskatchewan Christmas Mammal Count-2008.

| Map number | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sawyer Lake, 31 Dec 2008 | Skull Creek, 27 Dec 2008 | Snowden, 5 Jan 2009 | Somme, 2 Jan 2009 | Squaw Rapids, 1 Jan 2009 | Stenen, 1 Jan 2009 | Swift Current, 27 Dec 2008 | Togo, 4 Jan 2009 | Viceroy-Bengough, 21 Dec 2008 | Weyburn, 27 Dec 2008 | White Bear, 5 Jan 2009 | Whitewood, 28 Dec 2008 | Wingard-Fort Carlton, 3 Jan 2009 | Yorkton, 19 Dec 2008 |
| Short-tailed Shrew | | | | | | | | | | | | | | |
| Masked Shrew | | | | | | | | | | | | | | |
| Shrew Species | | | | | | | | | | | | | | |
| Eastern Cottontail | | | | | | | | | | | | | | |
| Nuttall's Cottontail | | 4 | | | | | 1 | | | | | | | |
| Snowshoe Hare | c | | | c | t | | t | 1 | | | t | 2 | t | |
| White-tailed Jack Rabbit | | 2 | | c | | | t | | 1 | | | t | 1 | t |
| Richardson's Ground Squirrel | | | | | | | | | | | t | c | | |
| Eastern Grey Squirrel | | | | | | | 10 | | | | | | | 3 |
| Eastern Fox Squirrel | | | | | | | | | | 3 | | | | |
| American Red Squirrel | c | | 4 | c | 8 | 6 | | 5 | | | | 9 | 5 | 6 |
| Northern Flying-Squirrel | | | | | | | | 1 | | | | | | |
| American Beaver | | | | | L | | | | | | | L | L | L |
| Deer Mouse | | | | | | | t | | | | | | | |
| Muskrat | | | | | | | | | | | | L | L | L |
| Gapper's Red-backed Vole | | | | | | | | | | | | | | |
| Meadow Vole | | | | c | | | t | | | | | | | |
| Vole Species | t | | | | t | | | | t | | | | | |
| House Mouse | | | | | | | | | | | | | | |
| Mouse Species | t | | | | | | | | | | t | | | |
| American Porcupine | t | 2 | c | | | | | 1 | | | | | t | |
| Coyote | c | 2 | | 2 | 3 | | 1 | 6 | c | 2 | 2 | 2 | 3 | |
| Wolf | t | | | | 3 | | | 2 | | | | | | |
| Red Fox | c | 1 | | 1 | | 1 | | 3 | c | | 4 | 1 | t | |
| Raccoon | | t | | | | | | | | | | | | |
| American Marten | | | | | | | | 1 | | | | | | |
| Fisher | t | | | | | | | | | | | | | |
| Ermine | | | | | t | | | | | | | | | |
| Long-tailed Weasel | | 1 | | | | | | | | | | 1 | | |
| Least Weasel | | | | | t | | | | | | | | | |
| Weasel Species | t | | c | | t | | t | | | | | | t | |
| American Mink | | | | | m | | | | | | | | | |
| American Badger | | d | | | | | d | | | | | d | | |
| Striped Skunk | | | | | | | | | | | | | | |
| River Otter | | | | | 1 | | | | | | | | | |
| Mountain Lion | | | | | | | | | | | | | | |
| Lynx | | | | | | | | | | | | | | |
| Mule Deer | | 30 | | | | | 23 | | 29 | | 14 | | 7 | |
| White-tailed Deer | t | 150 | 14 | 27 | 6 | 4 | 20 | 7 | 9 | 6 | | 2 | 9 | t |
| Deer Species | | | | | t | | t | | | | | | | |
| Moose | c | | | 1 | | | | | | | 1 | 5 | | |
| Elk | t | | | c | t | | | 40 | | | | t | | |
| Pronghorn | | | | | | | | | | | | | | |
| American Bison | | | | | | | | | | | | | | |
| Totals seen/heard on count day | 0 | 192 | 18 | 31 | 21 | 11 | 55 | 67 | 39 | 11 | 21 | 22 | 25 | 9 |
| Total species seen/heard | 0 | 8 | 2 | 4 | 5 | 3 | 5 | 10 | 3 | 3 | 4 | 7 | 5 | 2 |
| Total species recorded by tracks | 7 | 1 | 0 | 0 | 5 | 0 | 6 | 0 | 1 | 0 | 3 | 2 | 4 | 2 |
| Total species otherwise recorded | 0 | 1 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 2 | 2 |
| Species recorded count period | 5 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 |
| Total species count period and day | 12 | 10 | 4 | 9 | 12 | 3 | 11 | 10 | 6 | 3 | 7 | 13 | 11 | 6 |

Table 1-7. 36th Saskatchewan Christmas Mammal Count-2008.

| | # individuals seen/heard count day | # Counts seen/heard | # Counts recorded as tracks | # Counts recorded as other | # Counts, count period | # Counts, count period & count day |
|---|---|---|---|---|---|---|
| Short-tailed Shrew | 0 | 0 | 1 | 0 | 0 | 1 |
| Masked Shrew | 1 | 1 | 0 | 0 | 0 | 1 |
| Shrew Species | 2 | 2 | 5 | 0 | 0 | 7 |
| Eastern Cottontail | 2 | 1 | 0 | 0 | 0 | 1 |
| Nuttall's Cottontail | 27 | 9 | 3 | 0 | 0 | 12 |
| Snowshoe Hare | 33 | 10 | 35 | 0 | 2 | 47 |
| White-tailed Jack Rabbit | 51 | 13 | 19 | 0 | 2 | 34 |
| Richardson's Ground Squirrel | 0 | 0 | 1 | 0 | 1 | 2 |
| Eastern Grey Squirrel | 21 | 5 | 0 | 0 | 0 | 5 |
| Eastern Fox Squirrel | 29 | 8 | 0 | 0 | 2 | 10 |
| American Red Squirrel | 179 | 49 | 1 | 0 | 2 | 52 |
| Northern Flying-Squirrel | 3 | 2 | 1 | 0 | 1 | 4 |
| American Beaver | 3 | 3 | 0 | 15 | 0 | 18 |
| Deer Mouse | 1 | 1 | 5 | 0 | 1 | 7 |
| Muskrat | 0 | 0 | 3 | 15 | 0 | 18 |
| Gapper's Red-backed Vole | 3 | 2 | 0 | 0 | 0 | 2 |
| Meadow Vole | 1 | 1 | 3 | 0 | 1 | 5 |
| Vole Species | 0 | 0 | 12 | 0 | 0 | 12 |
| House Mouse | 0 | 0 | 0 | 0 | 1 | 1 |
| Mouse Species | 3 | 2 | 17 | 0 | 0 | 19 |
| American Porcupine | 21 | 13 | 7 | 0 | 3 | 23 |
| Coyote | 166 | 52 | 11 | 1 | 3 | 67 |
| Wolf | 7 | 4 | 5 | 0 | 0 | 9 |
| Red Fox | 31 | 19 | 18 | 0 | 5 | 42 |
| Raccoon | 1 | 1 | 2 | 1 | 0 | 4 |
| American Marten | 2 | 2 | 3 | 0 | 0 | 5 |
| Fisher | 0 | 0 | 3 | 0 | 0 | 3 |
| Ermine | 1 | 1 | 10 | 0 | 0 | 11 |
| Long-tailed Weasel | 5 | 5 | 9 | 0 | 0 | 14 |
| Least Weasel | 0 | 0 | 8 | 0 | 0 | 8 |
| Weasel Species | 1 | 1 | 14 | 0 | 1 | 16 |
| American Mink | 4 | 3 | 3 | 1 | 1 | 8 |
| American Badger | 1 | 1 | 0 | 7 | 0 | 8 |
| Striped Skunk | 3 | 2 | 1 | 2 | 0 | 5 |
| River Otter | 20 | 4 | 3 | 0 | 2 | 9 |
| Mountain Lion | 0 | 0 | 1 | 0 | 0 | 1 |
| Lynx | 1 | 1 | 3 | 0 | 0 | 4 |
| Mule Deer | 1111 | 34 | 1 | 0 | 1 | 36 |
| White-tailed Deer | 1385 | 63 | 9 | 0 | 2 | 74 |
| Deer Species | 0 | 0 | 6 | 0 | 0 | 6 |
| Moose | 30 | 11 | 11 | 1 | 6 | 29 |
| Elk | 186 | 7 | 8 | 0 | 2 | 17 |
| Pronghorn | 200 | 5 | 0 | 0 | 1 | 6 |
| American Bison | 28 | 1 | 0 | 0 | 0 | 1 |
| Totals seen/heard on count day | 3563 | | | | | |
| Total species seen/heard | | 35 | | | | |
| Total species recorded by tracks | | | 34 | | | |
| Total species otherwise recorded | | | | 8 | | |
| Species recorded count period | | | | | 20 | |
| Total species count period and day | | | | | | 44 |

# INSECTS

# OCCURRENCE OF THE ENDANGERED GOLD-EDGED GEM (*SCHINIA AVEMENSIS*) AT CFB SUFFIELD NATIONAL WILDLIFE AREA, ALBERTA

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## Introduction

The Gold-edged Gem (*Schinia avemensis* Hooper) is a small (16-20 mm wingspan) day-flying flower moth. Its forewings are greenish-brown and maroon, crossed by two partial yellow bands, with a prominent yellow band along most of the outer edge of the forewing. There are no named subspecies, and the egg, larval, and pupal stages have not been described.[1] The Gold-edged Gem is currently listed as Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), meaning it faces imminent extirpation or extinction.

Gold-edged Gems have a very restricted and disjunct distribution in the arid regions of central North America; occupied sites are known to occur at one location each in Manitoba and Saskatchewan, two locations in Alberta, and three sites in Colorado. Figure 1 shows the recorded locations of Gold-edged Gems in North America (the third location in Colorado is obscured on the map by the more northerly location in that state); the three black dots in the Canadian Forces Base (CFB) Suffield National Wildlife Area (the dark grey area within CFB Suffield) are new observations. Table 1 contains detailed location information.

Gold-edged Gems are found in close association with their larval host plant, the Plains Sunflower (Figure 2, see inside back cover). In addition to obtaining nectar from the host plant, Rush Skeletonplant is an important and perhaps primary nectar source used by adult moths.[2] Gold-edged Gems have been found only within active sand dunes and blow-outs in close association with the larval host plant.

*Table 1. North American locations of Gold-Edged Gems*

| Location | Lat | Long | Observation | Source |
|---|---|---|---|---|
| CFB Suffield National Wildlife Area, AB | 50.32034 | -110.67806 | 2008 | Direct - GPS obtained by authors |
| CFB Suffield National Wildlife Area, AB | 50.62804 | -110.31678 | 2008 | Direct - GPS obtained by authors |
| CFB Suffield National Wildlife Area, AB | 50.51340 | -110.46063 | 2008 | Direct - GPS obtained by authors |
| Pakowki Lake, AB | 49.39800 | -110.87500 | 2005 | University of Alberta - Strickland Museum |
| Red Deer River, Bindloss, AB | 50.93800 | -110.41400 | 2004 | University of Alberta - Strickland Museum |
| Spruce Woods Provincial Park, MB | 49.66300 | -99.28700 | 2004 | University of Alberta - Strickland Museum |
| Burstall, SK | 50.70000 | -109.90800 | 2004 | University of Alberta - Strickland Museum |
| Great Sand Dunes NP, Colorado | 37.73467 | -105.51000 | | Direct - GPS obtained by Charles Harp |
| Great Sand Dunes NP, Colorado | 37.75267 | -105.51000 | | Direct - GPS obtained by Charles Harp |
| 2.5 mi NE of Roggen, Colorado | 40.19533 | -104.50583 | | Direct - GPS obtained by Charles Harp |

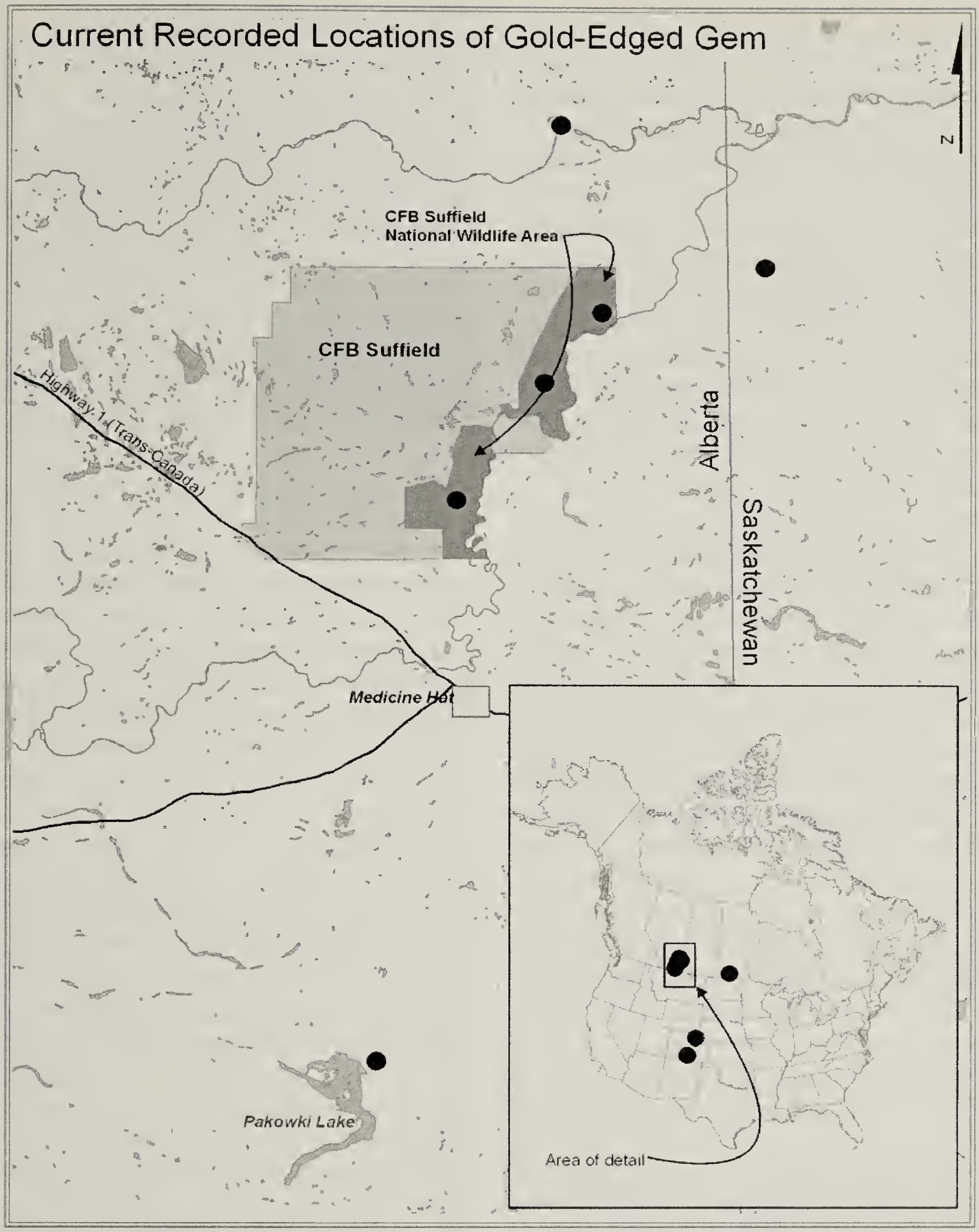

*Figure 1. North American distribution of the Gold-edged Gem*

In Canada, they are active throughout much of the day, from approximately 10 July to 20 August.

The main threat to the Gold-edged Gem is believed to be the loss of habitat resulting from stabilization of active sand dunes.[1] Active sand dunes are progressively becoming stabilized as a result of the current climatic conditions in combination with changes in fire and grazing regimes.[3,4] Loss of habitat from the encroachment of native and invasive species is also a concern;[1] both Crested Wheatgrass and Baby's-breath were observed in the dune complex at Pakowki Lake in southern Alberta, as was Sweet-clover at the Spruce Woods site in Manitoba, both of which are active Gold-edged Gem habitats. The establishment of these non-native invasive species may lead to the stabilization of dunes and the loss of native sunflowers and Skeleton Weed through competition.[5,6] It is also possible that the creation of roads or trail edges with Prairie Sunflowers in proximity to existing habitat may create sink habitat that further depresses local populations by drawing individuals of this species to areas where they may be subject to mortality from vehicle collisions or road grading. However, little is known about the specific factors affecting the conservation status of the Gold-edged Gem in Canada.

The CFB Suffield National Wildlife Area (NWA) is a 458-km$^2$ reserve of native grassland, active sand dunes, and coulees along the South Saskatchewan River in the grasslands of south-eastern Alberta. The two previously known Gold-edged Gem colonies in Alberta, at Pakowki Lake and along the Red Deer River north of Bindloss, are located south and north of the NWA, respectively. Between these two locations lie the Middle Sand Hills, which occur within the boundaries of the NWA. The purpose of this study was to determine whether the Gold-edged Gem occurs in CFB Suffield. The only other report of the Gold-edged Gem in Alberta is a historical specimen in the University of Alberta Strickland Museum collection labelled “Medicine Hat,” which may have come from the Middle Sandhills, the closest dune habitat to Medicine Hat.

## Methods

On 11-12 August 2008, after determining that Gold-edged Gems were active at the Pakowki Lake site, potential habitat in the CFB Suffield NWA (i.e., active sand areas with blooming native sunflowers) was visited and searched for adult Gold-edged Gems. Several areas of the NWA with active dune habitat were searched, including Amiens, Ypres, and Casa Berardi. An estimated 90-95% of the blossoms in or adjacent to active dunes were examined for resting adult moths, an effective method of locating Gold-edged Gems at other sites (G. Anweiler, pers. obs.).[1]

## Results

Single adult Gold-edged Gems were found at all three locations in the CFB Suffield NWA (Table 1): at the Dugway Dunes in area Casa Berardi at 522919E 5574298N, in the Middle Sand Hills in area Amiens at 548323E 5608686N, and in area Ypres at 538242E 5595854N (all locations are UTM 12 NAD 83). We searched an additional four dunes in area Ypres (537800E 595600N) and Amiens (547800E 5607100N, 545800E 5608800N, 544100E 5606300N) but found no Gold-edged Gems.

## Discussion

Gold-edged gems were observed in large numbers (more than 50 individuals) at the Pakowki Lake site, located approximately 100 km SSW of CFB Suffield. However, only single individuals were observed at the three sites where gems were found in the NWA. The difference in numbers observed may be attributable to differences in the amount and distribution of suitable habitat. Pakowki Lake comprises an extensive field of open dunes that are interconnected or separated by only small parcels of grassland vegetation. Cattle grazing in the area may be contributing to the maintenance of these dunes by removing vegetation and disturbing the soil. The sunflower colonies at the Pakowki dunes appeared to be larger and more numerous than at Suffield NWA. The active dunes at Suffield NWA are relatively small and separated by greater distances, which may limit dispersion and colonization of these areas. Additionally, it was our

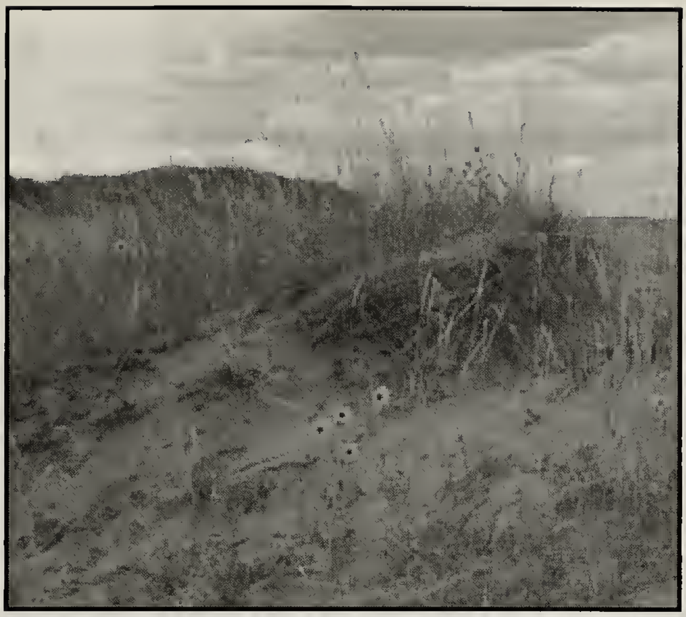

Figure 3. *Habitat of adult Gold-edged Gem at CFB Suffield National Wildlife Area*

impression that sunflowers at the NWA were more thinly distributed over larger areas and also along the numerous disturbed roadsides. At the Pakowki Lake site, the colonies contained greater densities of plants in relatively discrete colonies within the active dunes themselves.

Observations of habitat characteristics suggest that the Gold-edged Gem may not only be a specialist with respect to macro-habitat features (sand dunes) but also micro-habitat features of these dunes. The only Gold-edged Gems we found on dunes at Suffield were located on small, sandy, partially vegetated slopes on the lee side of the dune (SE-facing slopes) in small concave depressions (Figure 3). We did not find the species in the relatively larger depressions within the dune where sand was actively being eroded by wind action.

The fact that only a few individual Gold-edged Gems were found within the Suffield NWA does not necessarily indicate that this is an insignificant population. More extensive and systematic surveys over a period of years are needed to determine the size of the Suffield population. Currently, two of the three Alberta sites with Gold-edged Gems are on public lands and thus are offered some legislated protection. The Pakowki Dunes are Provincial crown land managed by Alberta Sustainable Resource Development. Suffield NWA is federal land managed by the Department of National Defence, and protection is afforded by both the *Species at Risk Act* and the *Canada Wildlife Act*. The land tenure of these habitats will, in part, determine the long-term protection, if any, of these habitats.

Now that the presence of this species within the boundaries of the NWA has been established, more systematic surveys are needed to determine the distribution of the species and the size of the population, as well as normal fluctuations in population size from year to year. Although survey timing is difficult given the short flight period of adult Gold-Edged Gems, stratification of surveys should clearly be directed at active sand dune regions of prairie Canada.

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2. HARDWICK, D.F. 1996. A Monograph to the North American Heliothenthinae (Lepidoptera: Noctuidae). Published privately.

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# NOTES AND LETTERS

## SAW-WHET OWLS NESTING NEAR PRINCE ALBERT, SK, IN 2008

*Nestling Northern Saw-whet Owl*
*H. Fisher*

During the spring of 2008, we found two nests of Northern Saw-whet Owls (NSWO) in the Nisbet Forest northeast of Prince Albert, Saskatchewan. This article describes the two nesting events and the human intervention that occurred to ensure the success of one of these.

During the spring of 2006, we installed three NSWO nestboxes in the Nisbet Forest and surrounding farmland northeast of Prince Albert. We installed another 10 boxes early in 2007 for a total of 13 that could possibly be active by the spring of 2008. We checked the 13 nest boxes on 30 April 2008, and found Nestbox #7 (hereafter called #7) occupied. This nest box is located well inside the Nisbet forest in a mixture of predominantly White Spruce and Trembling Aspen. It faces a small natural clearing to the southeast and is 4.9 m from the ground in a Trembling Aspen. We did not check the contents of the nestbox at this time for fear of disturbing the birds. On 15 May, we found a second NSWO nest 3.4 km northeast of #7. This nest was in a natural cavity, apparently created by a Pileated Woodpecker, in a dead Trembling Aspen at a height of 4.3 m.

Studies on NSWO nesting phenology in Alberta show that incubation and fledging days are 28 and 32 days, with an average egg-laying date of 12 April.[1] Based on the fledging dates of the young at these two nests, we estimate nest initiation to have occurred around 22 April in #7 and a week earlier in the natural cavity.

On 5 June, we captured and banded the females at both nests and examined the nest contents. The natural cavity held four healthy, feathered young and a Meadow Jumping Mouse.

The female was plump and well-groomed. We examined her pectoral muscle mass and rated her body condition as 5, which is the top of a 5-point scale used to assess body condition.

The female at #7 was found to be emaciated with matted and disheveled plumage. She weighed 102 g, which is within the range for a female NSWO, but her poor condition suggested that she should have been heavier. We rated her body condition as 1. The nest contained three chicks of quite different sizes and two unhatched eggs. There was no prey in this nest. We held little hope for the survival of the nestlings based on their apparent condition and that of the female.

We decided to provide the nestlings in #7 with supplementary food. On 7 June, we dropped three feeder mice into the nest cavity using an extendible painter's pole. For the next 5 days, we continued the daily feeding of three mice or voles, or one pocket gopher (dismembered).

When we opened the nest box on 12 June, we found three healthy chicks and the adult female, who appeared well-groomed and now weighed 117 g. All food items that we had placed in the nest had been consumed. The chicks weighed 74 g, 97 g, and 116 g. One of the two unhatched eggs was found to be infertile and the other contained a partly formed embryo.

We continued supplemental feeding, and by 15 June, the female would appear in the nest hole and take the mice from the feeding pole. On 17 June, the female was not present in the nest cavity and was not seen again. We verified the presence of young in the nest by the sound of clicking of beaks as we presented food to the nest opening. On 21 June, we opened #7 and found three well-feathered chicks, the smallest now weighing 84 g and the other two likely capable of flight. On 23 June, a chick was visible in the nest opening when we arrived, but retreated inside as we presented food. On 26 June, at least one chick was clicking its beak inside the nest box. On 27 June, the nestbox was empty.

The chicks in the natural cavity were much more even in size. When we banded them on 12 June, they weighed 100 g, 106 g, 107 g, and 110 g. The female was not in the nest at the time, but I captured her on the night of 13 June carrying a jumping mouse into the nest. On 18 June, I inspected the nest and found it to contain only two young that were capable of short flight. On 20 June, the cavity was empty, and I assume that all four young fledged successfully.

1. PRIESTLEY, L. 2008. The Nesting Phenology of Northern Saw-whet Owl and Boreal Owl in Central Alberta. *Nature Alberta* 28(3):20-25

*Harold Fisher*, R. R. 4, Site 1, Comp 231, Prince Albert, SK S6V5R2, E-mail: <hfisher@skvelocity.ca>

## DIVISION OF LABOUR IN A PAIR OF SNOW BUNTINGS WHILE RAISING OFFSPRING ON THE ARCTIC TUNDRA

Snow Buntings are a common to abundant winter visitor on the open prairies of Canada and the northern United States. In Saskatchewan, Snow Buntings arrive on the prairies in flocks of approximately 30 birds from late September to mid-October. Their flocks increase in size during February and March. The majority of Snow Buntings have left the prairies by mid-May, migrating northward to breeding grounds on tundra areas across the North.[1]

The breeding pairs are believed to be monogamous and raise one brood of four to seven offspring, occasionally two broods in the southern parts of their range.[2] The males arrive on the breeding grounds 3 to 4 weeks before the females. The pair builds its nest in a cavity, underneath or amidst rocks, occasionally under moss or in a ground depression. The nest is a loose mass of grass, moss, or lichen and is lined with grass, plant down, or feathers. The male feeds the female during egg laying and incubation.[3] There is considerable variation concerning how much food provisioning each parent contributes to the nestlings[4,5], and more details on their parental and rearing behaviours are needed. Experimental removal of the male from a breeding pair has shown that widowed females increase their rate of food delivery to the nestlings[6] but raise broods that are on average only 55% the mass of broods where both parents are feeding the offspring.[7]

While conducting ecological research in Quttinirpaaq National Park on northern Ellesmere Island, I observed a striking division of labour in a single pair of Snow Buntings while raising their offspring. These observations were made during July 1997 near a field camp on the north shore of Lake Hazen (82.5°N, 71.0°W). Near the camp, I discovered a breeding pair of Snow Buntings. The male exhibited striking plumage: clean white on his head, neck, chest, stomach, and ventral tail, with inky black areas on his back, primaries, and dorsal tail. The female was more muted in colouration: white on her throat, chest, stomach, and ventral tail, with a dusty grey head, nape, wing linings, and primaries, and a mottled back and dorsal tail. Because of this difference in plumage, the male was readily observed at greater distances and was more easily followed as he flew or hopped across the tundra compared to the less conspicuous female.

The pair was raising a brood of several chicks in a burrow under an earthen hummock. The nestlings constantly remained in their burrow during this phase, and the male made most of the trips to provide food for the young. During a bout of feeding that usually lasted more than 2 hours, the male arrived at the burrow every 10 to 15 minutes with his beak stuffed with insects, mostly mosquitoes. Over a number of days, he made hundreds of trips to feed the nestlings. On the other hand, the female made only occasional feeding trips and spent most of her time either in the burrow or on more distant parts of the territory. The male would come out of the burrow after feeding the chicks and immediately fly away. The female would come out of the burrow and alight on several hummocks and investigate the surrounding area.

Their parental behaviour changed abruptly when the chicks emerged from the burrow. On the morning of 14 July, the female arrived with a beak full of food. She went inside but came out with the food still in her mouth, looking behind her, apparently trying to lure the chicks outside with the promise of food. Three of them did come out. She concentrated on one chick, hopping farther away but looking back at it with her head low as if to offer it the food. After 5 minutes of luring the chick away from the burrow and pecking the ground in front of the chick, she finally gave it the food in her beak. She flew off but quickly returned carrying more food. She repeated this sequence several times, luring all five chicks outside. Then she flew off and did not return. During this time the male did not appear anywhere near the burrow. I returned in the afternoon and evening, but the burrow appeared to be abandoned.

The next day I observed several female buntings scattered widely, each tending a brood of chicks. I observed in detail the brood that was closest to the abandoned burrow, but I also observed similar patterns in several other family groups. The chicks were covered in grey down and had a few small wing feathers and stubby tail feathers. When they sat and remained motionless, they were very well camouflaged on the tundra. The chicks of this brood were spread out over approximately an acre of tundra, and only the female approached them. During the hours that I observed them, the male bunting did not approach the chicks. The female bunting hopped or flew from chick to chick, pecking the ground, perhaps encouraging them to eat vegetation. On occasion she would look at a chick and flutter her wings. The chick would do the same, and one of the chicks flew 3 to 4 m.

Thus in this pair of Snow Buntings, it was clear that the male provided most of the food to the nestlings while they were in the burrow, but as soon as the chicks emerged the female became the primary caregiver and remained with them. At this point, the male retired to more distant parts of the territory perhaps so as not to draw attention to the chicks and perhaps to replenish his energy reserves. There is considerable variation in the parental behaviour of Snow Buntings.[3,4,5] However, if this division of labour in raising offspring is frequently observed in other pairs of Snow Buntings, this pattern suggests that the conspicuous breeding plumage of the male, with its possible tendency of attracting predators, might act as a selection pressure that has influenced how the parental behaviour of this species has evolved.

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# ATYPICAL WARBLING VIREO NEST: LIKELY CAUSE OF HATCHING FAILURE

Characteristic of most species of vireos, Warbling Vireos build nests that are usually described as pensile or hanging baskets.[4,6] The nest is typically attached by its rim to two branches of a Y-shaped fork in a horizontal branch (Fig. 1).[11] These branches provide the only support for the suspended cup-shaped nest that is composed of plant down, grasses, and various plant and animal fibers.[6] Here, I describe an atypically constructed Warbling Vireo nest, whose construction abnormality likely led to egg-hatching failure.

On 15 June 1999, I found an active Warbling Vireo nest at Delta Marsh, Manitoba, by locating the male singing on the nest. The nest was 5.5 m high in a Manitoba maple tree (*Acer negundo*). Using a ladder, I examined the nest's contents and counted a clutch of four eggs. However, upon closer inspection, I was surprised to discover that the inside of the nest cup and the clutch were divided by a branch that ran through the middle (Fig. 2). I monitored the nest by checking its contents almost daily with a mirror attached to an extendable pole. At each visit through 27 June, an adult vireo was flushed from the nest and a check of the contents revealed four eggs with at least one egg separated from the rest of the clutch by the branch. The vireos deserted the nest shortly after this nest

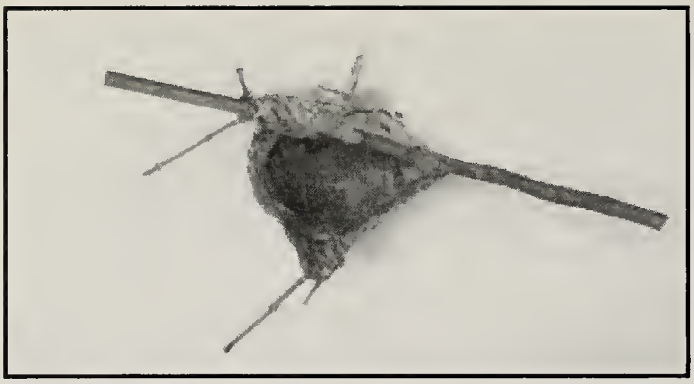

Figure 1. Top view of a Warbling Vireo nest characteristic of those from Delta Marsh, MB.

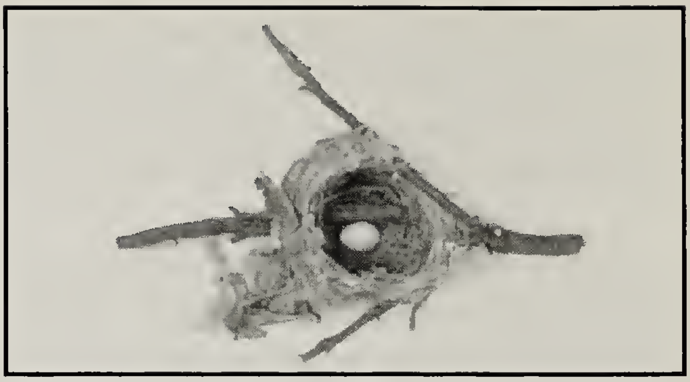

Figure 2. Top view of an atypical Warbling Vireo nest from Delta Marsh, MB.

check, because they were not observed at the nest over the next 4 days. On 29 June, two eggs were missing from the nest, and the nest held only a single egg on 1 July when I collected it. The nest was photographed and deposited in the University of Manitoba Zoology Museum (UMZM #2682). Out of >150 Warbling Vireo nests I have observed at Delta Marsh, this nest was the only record of a nest supported from the bottom or with a branch inside the cup.

During my observations, the vireos incubated this clutch for a minimum of 12 days. The incubation period of Warbling Vireos ranges from 10 to 16 days, with an average incubation period of 12.5 days.[6] Therefore, if properly incubated, these eggs would have been ready to hatch or soon would hatch. However, when the single remaining egg was cracked open after the nest was collected, there was no evidence of any embryonic development. It appears that the branch through the nest likely prevented proper incubation. The top of the branch was 14 mm higher than the bottom of the nest where the eggs sat. Warbling Vireo eggs average 14.05 mm wide and have a range of widths from 13.30-14.86 mm.[6] Thus, the branch probably did not allow optimal contact between the brood patch and the eggs, which led to hatching failure. I suspect the vireos deserted this nest due either to the presence of the branch or to the failure of the eggs to hatch within the normal incubation period.

The popular and ornithological literature is replete with examples of unusual nests. Most examples of unusual nests fall into one of two categories. Nests in the first category are odd because of the materials used in their construction, such as a Rock Pigeon nest made entirely of nails[10] and a Least Flycatcher nest lined with dragonfly wings.[5] Nests in the second category are atypical because of their location or site of attachment, such as Barn Swallow nests suspended from a wire or tree branch[14,15] and a Loggerhead Shrike nest in a tangle "shrub" of wire.[8] In addition, there are numerous examples of nests of typically ground-nesting birds in trees or of arboreal-nesting birds on the ground.[1,16,18]

By comparison, nests with an atypical construction or engineering abnormality, other than weaver birds that build elaborately woven nests,[17] appear to be rare. Nickell examined variation in nest construction of eastern and central North American birds.[11] For Red-eyed Vireos, Warbling Vireos, and Yellow-throated Vireos, he seldom found their nests to be supported by a branch on the bottom of the hanging cup. Of the vireos breeding in North America, only Gray Vireos are known to occasionally construct nests that are supported from below.[3,13] Other oddly constructed nests have been reported in vireos. For example, side-by-side "double nests" have been reported for Bell's and Red-eyed Vireos.[2,4] Although there are occasional variations in vireo nest construction, I found no other record of a vireo nest with a branch through the actual nest cup.[4,11,13]

Atypical nest placement has occasionally been identified to be the direct cause of hatching failure. For example, Hooded Oriole nests placed within streetlights with high temperatures experienced hatching failure.[6] Records of odd nest materials leading to hatching or nest failure appear to be uncommon. The use of sheep's wool as a nest lining material was found to lengthen the incubation period of Cave Swallows.[9] Individual swallow eggs became embedded in the wool separate from the rest of the clutch and were not incubated optimally.[9] A Rock Pigeon nest built largely of pieces of wire was suggested to have caused nestling mortality by interfering with normal brooding.[12] Despite the few records of hatching failure or interference from unusual nest placement and materials, I found no other example of a nest engineering abnormality such as the one I described in Warbling Vireos that led to hatching failure.

## Acknowledgments

I thank Robyn Underwood for commenting on this note and Rob Barrow for taking the photographs. I also thank the Delta Marsh Field Station (University of Manitoba) for providing logistical support. My work was funded by a grant from the Natural Sciences and Engineering Research Council of Canada to Spencer Sealy.

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# NEW BREEDING RECORD FOR PASSENGER PIGEONS EAST OF PRINCE ALBERT, SK, IN 1852

A recent examination of the personal journal of Rev. Robert Hunt has revealed two new records, including a breeding record for Passenger Pigeons along the North Saskatchewan River east of Prince Albert on 8 and 9 July 1852.

The Church Missionary Society of England sent Rev. Robert Hunt to the Canadian Northwest in 1850. He was to establish an Anglican mission in the Lac La Ronge area and to minister to the First Nations people of the region. In 1851, he established a mission across the Churchill River from present-day Stanley Mission and oversaw the construction of the impressive church on the site between 1854 and 1860. The church still stands and is the oldest standing building in the province.

While traveling along the Saskatchewan River on 8 July 1852, Hunt wrote "At breakfast I shot a pigeon and one of the Indians found one pigeon's eggs." Starting traveling around 5:00 a.m., they traveled until 2:00 p.m. when his group stopped at the confluence of the North and South Saskatchewan Rivers where Hunt "enjoyed my pigeon and egg." The group continued their travels up the North Saskatchewan River, and on the morning of 9 July, they encountered pigeons again as they "passed a tree liberally covered with pigeons at roost."

Aside from the pigeons, Hunt noted that late in the day on 8 July they encountered large banks of sand and gravel where "myriads of sand martins were burrowing: & house swallows, as we call them, still more numerous, were hung – coating the surface with nest of mud. As we passed under them the multitudes issued from their nests and spotted filled the firmament, high and low, as thickly as flakes of snow."

Robert Hunt was not a naturalist, and he did not seem to be overly interested in natural life around him, as these three sightings were the only references to bird life throughout 70 pages of his journal covering almost a year of his life. For that reason, as well as his recent arrival to the Northwest, it is not surprising that he does not mention the Passenger Pigeon by its proper name. However, based on 21 historical records of the Passenger Pigeon in Saskatchewan, the Northeast was where the birds were most common in the province.[2] As well, farther downstream at Cumberland House, the pigeons were regularly observed nesting, making it likely that what he referred to as "pigeons" were Passenger Pigeons.[2] This assumption is further bolstered by the facts that birds of similar appearance, such as Mourning Doves, were either absent or extremely rare in Saskatchewan during the period,[1,3] and Rock Doves had yet to colonize the province, as well as the observation of the pigeons in a large flock, which was the most conspicuous behaviour of Passenger Pigeons.

Only Rev. Hunt's journal entries from 29 November 1851 and 9 October 1852 were examined, as they were the only entries immediately available to the author. Investigation of his journal for the remainder of his tenure in Saskatchewan (1850-1864) may reveal additional information.

## Acknowledgments

I thank C. Stuart Houston for his assistance and advice.

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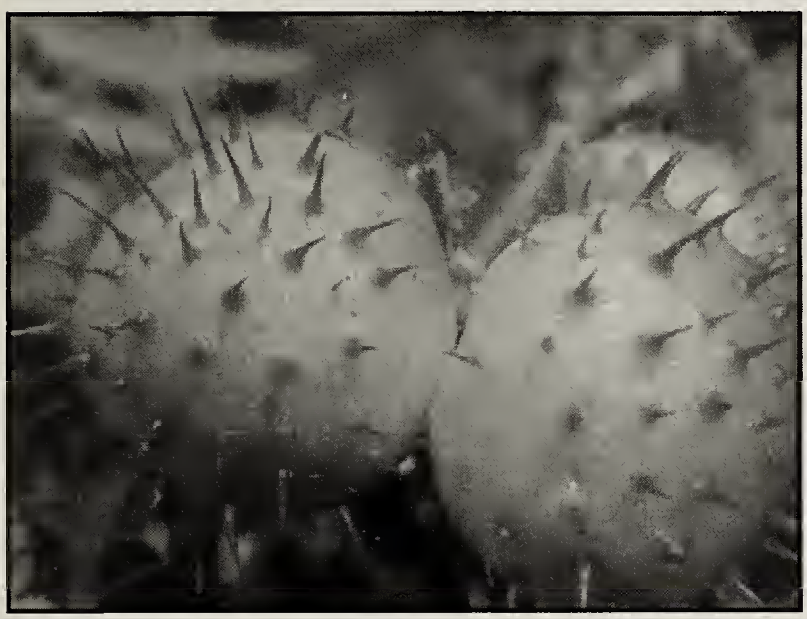
# MYSTERY PHOTO

### MARCH 2009 MYSTERY PHOTO

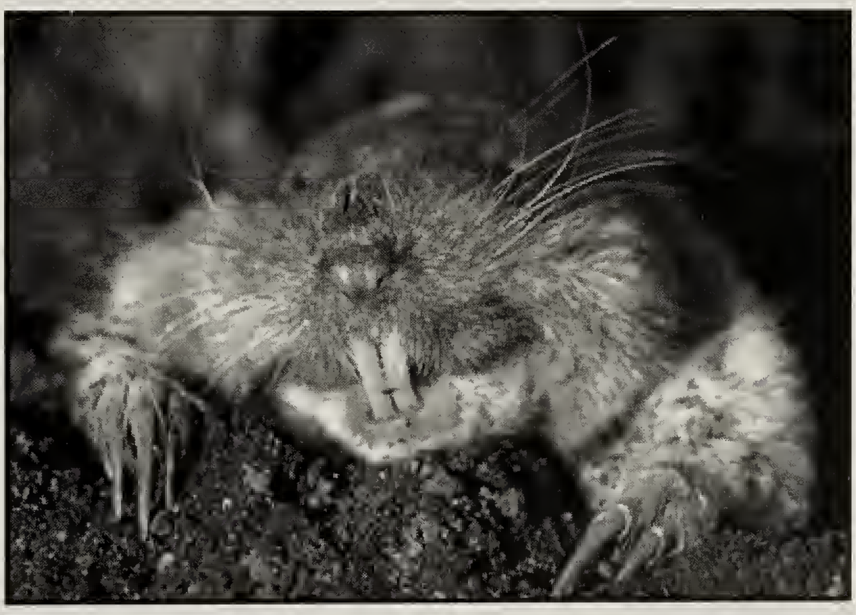


Can you identify the mace-like structures pictured in this photo?

### ANSWER TO THE DECEMBER 2008 MYSTERY PHOTO

Trish Barker from North Poratl, SK, correctly identified the December mystery photo.

She writes, “The picture shows a pocket gopher and its exterior cheek pouches give it the name.” Indeed, the Northern Pocket Gopher is named for its fur-lined pockets, which are quite obvious in the photo.



*Northern Pocket Gopher*

Thanks to Wayne Lynch for submitting the photo and to Trish for correctly solving the mystery.

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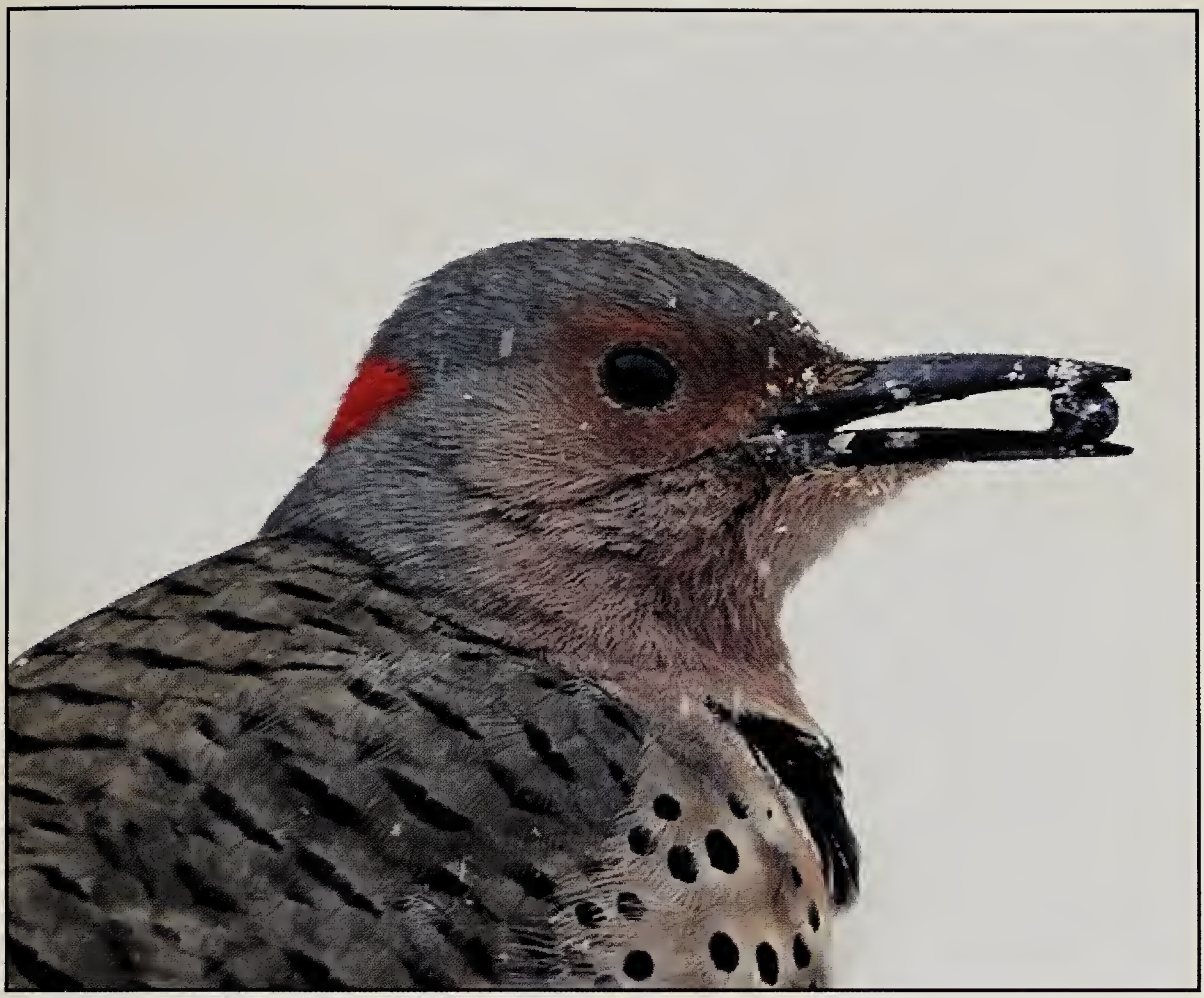

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